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United States Department of Agriculture

Forest Service

North Central Forest Experiment Station

General Technical Report **NC-134**

Operability and Location of Wisconsin's Timber Resource

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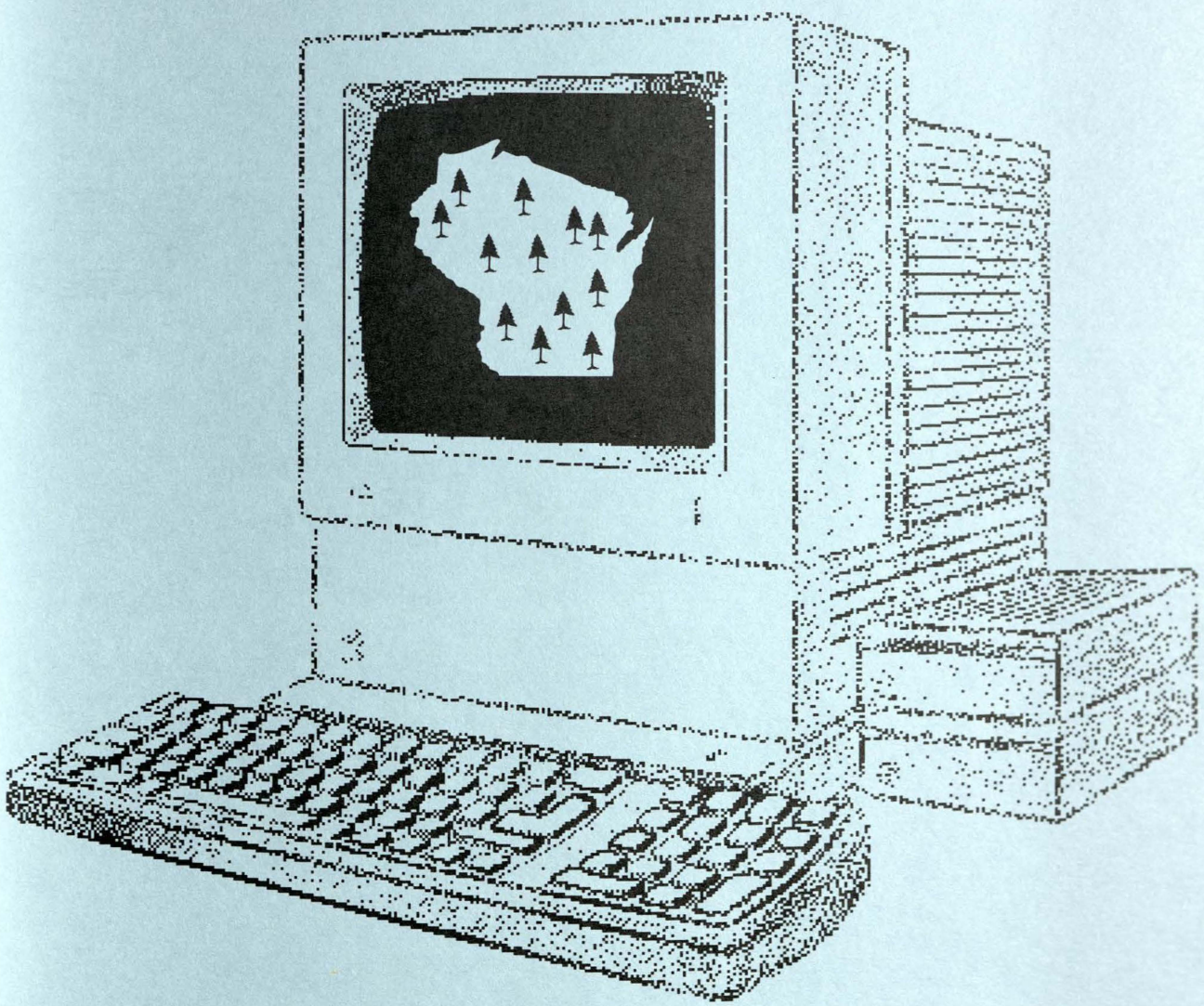

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1992 Folwell Avenue
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Manuscript approved for publication June 26, 1989
1989

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Operability and Location of Wisconsin's Timber Resource

Jerold T. Hahn and Mark H. Hansen

Although forest inventory reports contain estimates of timber resources, they do not include an assessment of the feasibility of managing or harvesting these resources. Because of the demand for this information, Forest Inventory and Analysis (FIA) project scientists at the North Central Forest Experiment Station developed a flexible method to objectively estimate operability (Spencer *et al.* 1986). This method has been used to assess the operability of Minnesota's timber resources (Spencer *et al.* 1986) and Michigan's timber resources (Hansen and Hahn 1987). We define operability as the ease or difficulty of managing or harvesting timber because of physical conditions in the stand or on the site. Operability values are based only on measurable physical conditions. We do not attempt to analyze the economic or personal factors influencing owners to harvest or manage their timber. Operability problems include small average tree size, fragile soils, poor drainage, inaccessibility, and small tract size, among others.

This paper presents our analysis of the operability of the 14.8 million timberland acres supporting 15.5 billion cubic feet of growing stock in Wisconsin (Spencer *et al.* 1988). Because the methods used are similar to those used by Spencer *et al.* (1986) in Minnesota and Hansen and Hahn (1987) in Michigan, users can compare data among these three States.

METHODS

We selected the information used to define the operability class components from tree and stand data collected on permanent sample plots during the 1983 State inventory. The sampling method and accuracy of this inventory is described by Spencer *et al.* (1988). Briefly, the inventory consisted of sample plots randomly located throughout the State. A total of 6,983 plots were taken on Wisconsin's timberland. This yielded an average area expander (the area represented by the plot) of 2,100 acres per plot.[1] Each plot consisted of a cluster of ten 37.5 Basal Area Factor (BAF) prism points distributed over 1 acre. We used tree measurements taken on these plots to estimate volume per acre and other stand conditions. The sampling error (at the 67-percent probability level) for the estimated total timberland area was 0.22 percent. The sampling error for growing-stock volume on timberland was 1.05 percent. Sampling errors for areas and volumes smaller than the State totals are:

Sampling error (Percent)	Timberland area (Thousand acres)	Growing-stock volume (Million cubic feet)
1	744.0	17,213.0
2	186.0	4,303.2
3	82.7	1,912.6
4	46.5	1,075.8
5	29.8	688.5
10	7.4	172.1
15	3.3	76.5
20	1.9	43.0
25	1.2	27.5
50	0.3	6.9
100	0.1	1.7

Operability classes for Wisconsin's timberland were based on seven components — stand area, growing-stock volume per acre, sawtimber volume per acre, percent of cull trees in the stand, average diameter at breast height (d.b.h.) of growing- stock trees, merchantable height of growing-stock trees, and distance to a maintained road

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[1] *Metric equivalents of units used in this report are presented in the Appendix.*

from the stand. Public and private forestry representatives identified these as the most important factors in determining operability. The same components were used by Spencer *et al.* (1986) in Minnesota and Hansen and Hahn (1987) in Michigan.

Operability classifications I, II, or III (good, medium, or poor) were defined for each component (table 1). The ranges of these classifications were selected after extensive review by professionals from both public and private forest management and timber acquisition in the Lake States region. These reviewers suggested changes in some of the range limits between Minnesota and Michigan. We note these changes in the footnotes of table 1. Ranges for Michigan and Wisconsin are identical and reflect the standards held by timber industry professionals for good, medium, or poor operability stands in both States.

The overall operability classification of any area was determined by a computer scan of the plot records and is based on the poorest operability component. In order for an inventory plot to be rated operability class I (good), all of the values for the seven components on the plot had to be class I. A plot was rated class II (medium) if any component was rated class II and the other six were at least class I. A plot was rated operability class III (poor) if any of the component values were class III. For example, if the values for six components on a plot were class I and the value for the remaining component was class III, the plot was considered operability class III. All sapling-seedling and nonstocked plots were considered inoperable (class IV); we believe that most of this land would not be harvested in the near future and that including it in the study would dilute the findings.

Table 1.—*Operability component values for each operability class*

Operability component/ limiting factor	Operability class		
	I (good)	II (medium)	III (poor)
Stand area (in acres)	More than 60	10-60	Less than 10
Growing-stock volume per acre (includes cubic foot volume of sawtimber-sized material) (in cubic feet)[1]	More than 1,000	400-1,000	Less than 400
Sawtimber volume per acre (in board feet, International 1/4-inch rule)[2]	More than 2,500	700-2,500	Less than 700
Percent of all live trees that are cull (in percent	Less than 20	20-50	More than 50
Average diameter at breast height (d.b.h.) of growing-stock trees (in inches)[3]	More than 9	6-9	Less than 6
Average merchantable height of growing-stock trees (in feet)	More than 28	16-28	Less than 16
Distance to a maintained road (in miles)	Less than 1/4	1/4 - 3/4	More than 3/4

[1]Threshold values for growing-stock volume per acre used in the Minnesota study (Spencer *et al.* 1986) were: more than 800, 300 to 800, and less than 300 cubic feet per acre.

[2]Threshold values for sawtimber volume per acre used in the Minnesota study (Spencer *et al.* 1986) were: more than 3,000, 1,100 - 2,000, and less than 1,100 board feet per acre.

[3]Threshold values for average d.b.h. of growing-stock trees used in the Minnesota study (Spencer *et al.* 1986) were: more than 10, 6-10, and less than 6 inches.

The components that prevent a plot from being classed higher, or limiting factors, are useful to those that find our definitions of the operability classes too restrictive. Using the information presented in the Appendix, people can develop their own criteria for determining operability. For example, you may wish to rank the importance of limiting factors, allow more than one factor to deviate from the majority, or eliminate a factor entirely. Additional volumes or areas may be rated class I or II if some limiting components are disregarded.

With the assistance of the Wisconsin DNR, we identified 14 major wood-using centers in Wisconsin (fig. 1): Cornell-Stanley, Durand, Green Bay, Hayward, Kaukauna, Niagara-Peshtigo, Onalaska, Park Falls, Rice Lake-Spooner, Shawano, Superior, Tomahawk, Wausau, and Wisconsin Rapids. Using the straight-line distance from the plots to these centers (computed from the Universal Transverse Mercator coordinates of the center and the plots), we computed area of forest land (table 13) and growing-stock volume (table 14) by operability class.

RESULTS

Area

About 6.1 million acres (41 percent) of timberland in Wisconsin are rated operability class II — medium. This class accounts for more of Wisconsin's timberland than any of the other classes (table 7). Another 4.5 million acres (31 percent) are rated class III — poor; and 260,900 acres (less than 2 percent) are rated class I — good. Class IV forest, sapling and seedling stands and nonstocked areas, total 3.9 million acres (26 percent). Only 8 of the 14 forest types identified in Wisconsin have area in operability class I (table 7). Although the criteria we used may be restrictive, it is possible to relax them as described below. We would appreciate comments on the use of the criteria in this study.

Adjustment by Limiting Factors

By removing some limiting factors, a user can shift some forest area into the good operability class (class I). For

Figure 1.--*Location of major wood-using centers in Wisconsin*

example, by using tables 7 and 8 and waiving the stand area component the 260,900 acres originally rated operability class I can be increased to 673,900 acres (260,900 + 413,000 acres). The total area in class I becomes 569,400 acres (260,900 + 308,500 acres) by removing the distance to road component. Waiving both components, the new class I area becomes 1,324,400 acres (260,900 + 413,000 + 308,500 + 342,000 acres). Although the new area is 5 times larger than the original area, it still represents only 12 percent of the State's total for classes I-III.

Ownership

The portion of timberland in each operability class differs among ownership classes (table 3). Four ownership groups — Indian, National Forest, farmer, and forest industry — together own more than 40 percent of the timberland in Wisconsin and the highest percentages of timberland in operability classes I and II. The Indian ownership group with 10 percent of its land in operability class I has by far the greatest amount in this class. This is probably due to the ease of access and high volumes per acre in Menominee County, where all of the land is owned by Indians. Timberland in the Indian, National Forest, and forest industry ownership groups probably is managed more intensively than private timberland and may be predisposed to higher operability ratings. The farmer-owned land tends to be more accessible by road in Wisconsin and is probably in the higher operability classes for this reason.

Distance From Wood-using Center

Nearly 424,000 acres of operable timberland are within a 20-mile radius of Hayward, Wisconsin (table 13). Hayward had the greatest concentration of operable timberland of any major wood-using center in the State. Park Falls, Wisconsin, had 391,000 acres and Tomahawk had 347,000 acres within 20 miles. If the timbershed is extended to a radius of 50 miles, Hayward is still first with 2,352,000 acres, followed by Park Falls (2,301,000) and Tomahawk (1,965,000).

If we consider distance by operability class, a different picture emerges. Shawano, Wisconsin, leads with 19,800 acres in operability class I timberland within 20 miles of town. However, because class I area is so small, it makes more sense to expand the discussion to operability classes I and II. When this is done, Park Falls (235,000 acres), Hayward (232,000), and Tomahawk (183,000) again lead the list.

Volume

We also classed growing-stock volume on timberland in Wisconsin by operability class. Because the same kind of tables were generated for volume as for area, we present only the highlights.

Table 2.—*Area of operable timberland by ownership class and operability class, Wisconsin, 1983*

Ownership class	All classes	Operability class		
		I	II	III
	Thousand acres		- - - - -*Percent*- - - -	
Indian	320.8	10	53	37
National Forest	1,015.5	3	61	36
Farmer	2,716.1	2	61	37
Forest industry	800.1	4	58	38
State	372.1	2	58	40
Misc. private	4,055.3	2	56	42
County and municipal	1,489.4	1	45	54
Other federal	108.8	0	50	50
All owners	10,878.1	1	45	54

Wisconsin's 1983 growing-stock inventory of 14.3 billion cubic feet is broken down into operability classes as follows:

Operability class	Growing-stock volume (Million cubic feet)	(Percent)
I	499	3
II	8,852	62
III	4,962	35
All classes	14,313	100

The maple-birch type, which represents 33 percent of the combined volumes in classes I through III, includes 50 percent of the operability class I volume (table 15). These figures reflect the bias of the components towards larger, older trees.

Adjustment by Limiting Factors

Users can adjust volumes in the same way they adjusted area. Waiving the same two operability components as in the area discussion (stand area and distance to road) changes the volume in operability class I from 499 to 2,503 million cubic feet (tables 15 and 16). The volume in operability class II shifts from 8,851 to 9,524 million cubic feet (tables 15 and 17). Percentages in each class then become:

Operability class	Volume (Percent)
I	17
II	67
III	16
All classes	100

Volume Per Acre

As expected, higher volumes per acre are associated with the better operability classes (tables 3 and 4). All of the class I land, 73 percent of class II land, and 49 percent of class III land have more than 1,000 cubic feet of growing-stock volume per acre.

Table 3.—*Percent of operable timberland by growing-stock volume and operability class, Wisconsin, 1983*

(In percent)

Growing-stock volume/acre (cu ft/acre)	Operability class I	II	III
More than 1,000	100	73	49
From 400 to 1,000	—	27	39
Less than 400	—	—	12
Total	100	100	100

Table 4.—*Average growing-stock volume per acre on operable timberland by volume and operability class, Wisconsin, 1983*

(In cubic feet/acre)

Volume/acre class (cu ft/acre)	Average all classes	Operability class I	II	III
More than 1,000	1,683	1,912	1,702	1,618
From 400 to 1,000	742	—	770	716
Less than 400	268	—	—	268

Ownership

All owners except county, municipal, and other federal have more than 65 percent of their growing-stock volume in operability classes I and II (table 5). The Indian and National Forest owners have 70 percent of their growing-stock volume in operability classes I and II; Indian owners have 13 percent of their volume in operability class I. As is the case with area, this large volume of Indian ownership in operability class I is probably due to the high volumes per acre and excellent quality (indicated by a low percent of cull trees and high average d.b.h.) of the timber in Menominee County.

Table 5.—*Growing-stock volume on operable timberland by ownership class and operability class, Wisconsin, 1983*

Ownership class	All classes	Operability class		
		I	II	III
	Thousand cubic feet		*Percent*	
Indian	619,159	13	57	30
National Forest	1,496,624	4	66	30
Farmer	3,385,531	2	67	31
Forest industry	1,145,432	5	62	33
State	493,363	4	62	34
Misc. private	5,175,062	3	63	34
County and municipal	1,873,068	1	51	48
Other federal	124,864	—	56	44
All owners	14,313,103	3	62	35

Distance From Wood-using Center

Park Falls is within 20 miles of 361 million cubic feet of operability class I and II growing stock — more than any other wood-using center in the State. Hayward and Shawano follow with 352 and 338 million cubic feet, respectively (table 21). If the radius is extended to 50 miles, the cities are in the same order.

Summary

The tables we provide separate timberland area and growing-stock volume into operability classes by forest type, volume per acre class, stand-age class, ownership class, and distance from wood-using center. The tables also permit the user to discount up to three operability components and determine operability class based on the remaining selected components.

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APPENDIX

Principal Tree Species Groups in Wisconsin[2]

Softwoods

Eastern white pine ..... *Pinus strobus*
Red pine ..... *Pinus resinosa*
Jack pine ..... *Pinus banksiana*
White spruce ..... *Picea glauca*
Black spruce ..... *Picea mariana*
Balsam fir ..... *Abies balsamea*
Eastern hemlock ..... *Tsuga canadensis*
Tamarack ..... *Larix laricina*
Northern white-cedar ..... *Thuja occidentalis*
Other softwoods
- Eastern redcedar ..... *Juniperus virginiana*
- Norway spruce ..... *Picea abies*
- Engelmann spruce ..... *Picea engelmannii*
- Austrian pine ..... *Pinus nigra*
- Scotch pine ..... *Pinus sylvestris*

Hardwoods

White oak
- White oak ..... *Quercus alba*
- Swamp white oak ..... *Quercus bicolor*
- Bur oak ..... *Quercus macrocarpa*
- Chinkapin oak ..... *Quercus muehlenbergii*
- Chestnut oak ..... *Quercus prinus*

Select red oak
- Northern red oak ..... *Quercus rubra*

[2]*The common and scientific names are based on: Little, Elbert L. 1979. Checklist of native and naturalized trees of the United States. Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service. 375 p.*

Other red oak
- Scarlet oak ..... *Quercus coccinea*
- Northern pin oak ..... *Quercus ellipsoidalis*
- Pin oak ..... *Quercus palustris*
- Black oak ..... *Quercus velutina*

Hickory
- Bitternut hickory ..... *Carya cordiformis*
- Pignut hickory ..... *Carya glabra*
- Shellbark hickory ..... *Carya laciniosa*
- Shagbark hickory ..... *Carya ovata*
- Mockernut hickory ..... *Carya tomentosa*

Yellow birch ..... *Betula alleghaniensis*

Hard maple
- Sugar maple ..... *Acer saccharum*
- Black maple ..... *Acer nigrum*

Soft maple
- Red maple ..... *Acer rubrum*
- Silver maple ..... *Acer saccharinum*

Beech ..... *Fagus grandifolia*

Ash
- White ash ..... *Fraxinus americana*
- Black ash ..... *Fraxinus nigra*
- Green ash ..... *Fraxinus pennsylvanica*

Balsam poplar ..... *Populus balsamifera*

Eastern cottonwood ..... *Populus deltoides*

Aspen
- Bigtooth aspen ..... *Populus grandidentata*
- Quaking aspen ..... *Populus tremuloides*

Basswood ..... *Tilia americana*

Yellow-poplar ..... *Liriodendron tulipifera*

Black walnut ..... *Juglans nigra*

Black cherry ..... *Prunus serotina*

Butternut ..... *Juglans cinerea*

Elm
- American elm ..... *Ulmus americana*
- Slippery elm ..... *Ulmus rubra*
- Rock elm ..... *Ulmus thomasii*

Paper birch ..... *Betula papyrifera*

Other hardwoods
- Boxelder ..... *Acer negundo*
- Sweet birch ..... *Betula lenta*
- River birch ..... *Betula nigra*
- Black willow ..... *Salix nigra*
- Ohio buckeye ..... *Aesculus glabra*
- Flowering dogwood ..... *Cornus florida*
- Honeylocust ..... *Gleditsia triacanthos*
- Osage-orange ..... *Maclura pomifera*
- Black tupelo ..... *Nyssa sylvatica* var. *sylvatica*
- Sycamore ..... *Platanus occidentalis*
- Black locust ..... *Robinia pseudoacacia*
- Sassafras ..... *Sassafras albidum*
- Red mulberry ..... *Morus rubra*
- American chestnut ..... *Castanea dentata*

Metric Equivalents of Units Used in This Report

1 acre = 4,046.86 square meters or 0.405 hectare.
1,000 acres = 405 hectares.
1 cubic foot = 0.0283 cubic meter.
1 mile = 1.61 kilometers.
1 foot = 30.48 centimeters or 0.3048 meter.
1 inch = 25.4 millimeters, 2.54 centimeters, or 0.0254 meter.

Universal Transverse Mercator (UTM) Grid System

The UTM Grid System is designed for world use between 80° south latitude and 84° north latitude. The globe is divided into narrow zones of 6° of longitude in width, numbered 1 through 60. Each zone is bounded on the east and west by a meridian of longitude and with a central meridian passing through the center of the grid zone. In the northern hemisphere the intersection of the central meridian and the equator is given a value of 0 meters for northing coordinate, and the numbers increase towards the north pole. Because values increase from west to east, this same point of intersection is given a value of 500,000 meters for easting coordinate to avoid negative numbers at the western edge of the zone. A grid system of two sets of parallel lines intersecting at right angles and forming a series of squares is established within each grid zone. On the U.S. Geological Survey 7.5 minute topographic maps, the grid interval or length of each side of these squares is 1,000 meters. Each grid intersection can be uniquely identified by its easting and northing and the zone number. The first of these coordinates represents the distance in meters east of the central meridian of the grid zone and the second coordinate represents the distance in meters north of the equator. Any point on a topographic map can be referenced by using these coordinates and by dividing the sides of the grid square into 10 or multiples of 10 parts. The point coordinates, then, are read to a greater number of digits than the grid coordinates. Such a system permits a point to be lo-cated to the nearest 10 meters. If the UTM coordinates of any two points are known, the distance between them can be easily computed, even if they are in different zones.

DEFINITION OF TERMS

Commercial forest land.—(See timberland.)

Commercial species.—Tree species presently or prospectively suitable for industrial wood products. (Note: Excludes species of typically small size, poor form, or inferior quality such as hophornbeam and hawthorn.)

County and municipal land.—Land owned by counties and local public agencies or municipalities, or land leased to these governmental units for 50 years or more.

Cull.—Portions of a tree that are unusable for industrial wood products because of rot, poor form, or other defect.

Farm.—Any place from which $1,000 or more of agricultural products were produced and sold during the year.

Farmer-owned land.—Land owned by farm operators. (Note: Excludes land leased by farm operators from nonfarm owners, such as railroad companies and States.)

Forest industry land.—Land owned by companies or individuals operating primary wood-using plants.

Forest land.—Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. (Note: Stocking is measured by comparing specified standards with basal area and/or number of trees, age or size, and spacing.) The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams, or other bodies of water or clearings in forest areas shall be classed as forest if less than 120 feet wide. Also see timberland.

Forest trees.—Woody plants having a well-developed stem and usually more than 12 feet tall at maturity.

Forest type.—A classification of forest land based upon the species forming a plurality of live-tree stocking. Major forest types in Wisconsin are:

Jack pine.—Forests in which jack pine comprises a plurality of the stocking. (Common associates include eastern white pine, red pine, aspen, birch, and maple.)

Red pine.—Forests in which red pine comprises a plurality of the stocking. (Common associates include eastern white pine, jack pine, aspen, birch, and maple.)

White pine.—Forests in which eastern white pine comprises a plurality of the stocking. (Common associates include red pine, jack pine, aspen, birch, and maple.)

Balsam fir.—Forests in which balsam fir and white spruce comprise a plurality of stocking with balsam fir the most common. (Common associates include aspen, maple, birch, northern white-cedar, and tamarack.)

White spruce.—Forests in which white spruce and balsam fir comprise a plurality of the stocking with white spruce the most common. (Common associates include aspen, maple, birch, northern white-cedar, and tamarack.)

Black spruce.—Forests in which swamp conifers comprise a plurality of the stocking with black spruce the most common. (Common associates include tamarack and northern white-cedar.)

Northern white-cedar.—Forests in which swamp conifers comprise a plurality of the stocking with northern white-cedar the most common. (Common associates include tamarack and black spruce.)

Tamarack.—Forests in which swamp conifers comprise a plurality of the stocking with tamarack the most common. (Common associates include black spruce and northern white-cedar.)

Oak-hickory.—Forests in which northern red oak, white oak, bur oak, or hickories, singly or in combination, comprise a plurality of the stocking. Common associates include jack pine, beech, yellow-poplar, elm, and maple.)

Elm-ash-soft maple.—Forests in which lowland elm, ash, cottonwood, and red maple, singly or in combination, comprise a plurality of the stocking. (Common associates include birches, spruce, and balsam fir.)

Maple-birch.—Forests in which sugar maple, basswood, yellow birch, upland American elm, and red maple, singly or in combination, comprise a plurality of the stocking. (Common associates include white pine, elm, hemlock, and basswood.)

Aspen.—Forests in which quaking aspen or bigtooth aspen, singly or in combination, comprise a plurality of the stocking. (Common associates include balsam poplar, balsam fir, and paper birch.)

Paper birch.—Forests in which paper birch comprises a plurality of the stocking. (Common associates include maple, aspen, and balsam fir.)

Exotic.—Forests in which species not native to Wisconsin comprise a plurality of the stocking. (Mostly scotch pine plantations.)

Growing-stock trees.—Live trees of commercial species, excluding rough and rotten trees.

Growing-stock volume.—Net volume in cubic feet of growing-stock trees 5 inches d.b.h. and over, from a 1-foot stump to a minimum 4 inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs. Cubic feet can be converted to

standard cords by dividing by 79. One stan-dard cord is 128 cubic feet of stacked wood, including bark and air.

Hardwoods.—Dicotyledonous trees, usually broad-leaved and deciduous.

Indian land.—All land held in trust by the United States for individual Indians or tribes, or all land titles held by individual Indians or tribes, subject to Federal restrictions against alienation.

Live trees.—Growing-stock, rough, and rotten trees 1 inch d.b.h. and larger.

Maintained road.—Any road, hard-topped or other surface, that is plowed or graded at least once a year. Includes rights-of-way that are cut or treated to limit herbaceous growth.

Merchantable.—Refers to the bole section of poletimber or sawtimber trees.

Miscellaneous federal land.—Federal land other than National Forest and land administered by the Bureau of Land Management.

Miscellaneous private land.—Privately owned land other than forest-industry and farmer-owned land.

National forest land.—Federal land that has been legally designated as National Forest or purchase units, and other land administered by the USDA Forest Service.

Net volume.—Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial species.—Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonstocked land.—Timberland less than 16.7 percent stocked with growing-stock trees.

Poletimber stands.—See stand-size class.

Poletimber trees.—Growing-stock trees of commercial species at least 5 inches d.b.h. but smaller than sawtimber size.

Saplings.—Live trees 1 to 5 inches d.b.h.

Sapling-seedling stands.—(See stand-size class.)

Saw log.—A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight and with a minimum diameter outside bark (d.o.b.) for softwoods of 7 inches (9 inches for hardwoods) or other combinations of size and defect specified by regional standards.

Saw log portion.—That part of the bole of sawtimber trees between the stump and the saw log top.

Saw log top.—The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7 inches d.o.b. for softwoods and 9 inches d.o.b. for hardwoods.

Sawtimber stands.—(See stand-size class.)

Sawtimber trees.—Growing-stock trees of commercial species containing at least a 12-foot saw log or two noncontiguous saw logs 8 feet or longer, and meeting regional specifications for freedom from defect. Softwoods must be at least 9 inches d.b.h. Hardwoods must be at least 11 inches d.b.h.

Sawtimber volume.—Net volume of the saw log portion of live sawtimber in board feet, International 1/4 -inch rule, from stump to a minimum 7 inches top diameter outside bark (d.o.b.) for softwoods and a minimum 9 inches top d.o.b. for hardwoods.

Seedlings.—Live trees less than 1 inch d.b.h. that are expected to survive. Only softwood seedlings more than 6 inches tall and hardwood seedlings more than 1 foot tall are counted.

Softwoods.—Coniferous trees, usually evergreen, having needles or scale-like leaves.

Stand.—A growth of trees on a minimum of 1 acre of forest land that is stocked by forest trees of any size.

Stand-age class.—Age of the main stand. Main stand refers to trees of the dominant forest type and stand-size class.

Stand-size class.—A classification of forest land based on the size class of growing-stock trees on the area; that is, sawtimber, poletimber, or seedlings and saplings.

a. *Sawtimber stands.*—Stands at least 16.7 percent stocked with growing-stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

b. *Poletimber stands.*—Stands at least 16.7 percent stocked with growing-stock trees of which half or more of this stocking is in poletimber and/or sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

c. *Sapling-seedling stands.*—Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and/or seedlings.

d. *Nonstocked areas.*—Timberland on which stocking of growing-stock trees is less than 16.7 percent.

State land.—Land either owned by States or leased to them for 50 years or more.

Timberland.—(Formerly called commercial forest land.) Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Note: Areas qualifying as timberland are capable of producing more than 20 cubic feet per acre of annual growth when managed. Currently inaccessible and inoperable areas are included except when the areas involved are small and unlikely to become suitable for producing industrial wood in the foreseeable future.)

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Table 6.--Area of timberland by operability class component and forest type, Wisconsin, 1983

(In thousand acres)

Operability class component	Forest type								
	All types	Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack
Stand area (acres)									
More than 60	4,325.8	175.5	126.1	34.1	57.0	20.2	31.3	87.4	35.1
10-60	7,675.1	256.5	224.3	102.6	274.1	20.0	172.5	222.8	134.6
Less than 10	2,758.5	114.5	127.8	88.9	88.3	21.2	69.2	60.5	53.0
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7
Growing-stock volume (cubic feet/acre)									
More than 1,000	7,021.6	199.6	321.2	150.2	153.7	36.7	38.9	216.5	28.9
400-1,000	4,528.9	204.7	41.6	54.2	187.0	8.1	63.7	123.1	86.8
Less than 400	3,208.9	142.2	115.4	21.2	78.7	16.6	170.4	31.1	107.0
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7
Sawtimber volume (board feet/acre)									
More than 2,500	5,289.8	117.9	213.4	171.5	146.9	26.6	26.0	124.8	7.2
700-2,500	4,641.7	186.0	51.9	20.5	158.1	17.9	42.9	152.1	50.3
Less than 700	4,827.9	242.6	212.9	33.6	114.4	16.9	204.1	93.8	165.2
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7
Percent cull trees (percent)									
Less than 20	9,832.0	407.5	365.1	173.1	345.6	45.5	198.6	276.5	168.7
20-50	2,900.0	76.5	21.8	26.2	50.6	3.7	14.5	71.1	19.2
More than 50	2,027.4	62.5	91.3	26.3	23.2	12.2	59.9	23.1	34.8
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7
Average d.b.h. of growing-stock trees (inches)									
More than 9	5,126.2	73.5	93.5	110.6	75.7	7.1	10.0	51.1	17.2
6-9	8,129.4	362.5	251.2	102.8	312.8	41.2	156.0	284.2	142.2
Less than 6	1,503.8	110.5	133.5	12.2	30.9	13.1	107.0	35.4	63.3
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7
Average merchantable height of growing-stock trees (feet)									
More than 28	10,503.0	214.6	232.1	167.2	217.4	31.5	62.3	86.3	68.0
16-28	3,203.5	274.3	156.5	46.2	183.9	16.8	158.2	259.1	118.1
Less than 16	1,052.9	57.6	89.6	12.2	18.1	13.1	52.5	25.3	36.6
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7
Distance to road (miles)									
Less than 1/4	7,311.6	370.9	352.4	136.2	186.1	43.0	104.4	151.3	77.9
1/4-3/4	6,283.1	161.3	102.5	87.4	186.2	16.4	123.0	178.0	119.8
More than 3/4	1,164.7	14.3	23.3	2.0	47.1	2.0	45.6	41.4	25.0
All classes	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7

(Table 6 continued on next page)

(Table 6 continued)

Operability class component	Forest type						
	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Stand area (acres)							
More than 60	895.0	229.9	1,484.2	954.5	163.0	2.2	30.3
10-60	1,556.3	633.9	1,924.6	1,710.7	367.1	--	75.1
Less than 10	407.4	376.8	588.1	596.3	111.5	--	55.0
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4
Growing-stock volume (cubic feet/acre)							
More than 1,000	1,346.4	506.2	2,447.8	1,235.2	340.3	--	--
400-1,000	1,027.7	434.4	1,076.9	999.6	219.2	--	1.9
Less than 400	484.6	300.0	472.2	1,026.7	82.1	2.2	158.5
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4
Sawtimber volume (board feet/acre)							
More than 2,500	1,436.6	414.8	1,918.4	525.9	159.8	--	--
700-2,500	849.5	446.5	1,336.9	1,083.0	233.4	--	12.7
Less than 700	572.6	379.3	741.6	1,652.6	248.4	2.2	147.7
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4
Percent cull trees (percent)							
Less than 20	1,476.6	822.8	2,709.4	2,340.1	470.1	--	32.4
20-50	899.2	271.6	883.5	427.7	119.2	2.2	13.0
More than 50	482.9	146.2	404.0	493.7	52.3	--	115.0
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4
Average d.b.h. of growing-stock trees (inches)							
More than 9	1,657.3	449.7	1,640.9	758.2	141.2	--	40.2
6-9	1,069.2	704.6	2,183.3	2,008.5	459.3	--	51.6
Less than 6	132.2	86.3	172.7	494.8	41.1	2.2	68.6
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4
Average merchantable height of growing-stock trees (feet)							
More than 28	2,346.9	862.0	3,345.8	2,302.7	504.2	--	62.0
16-28	411.7	321.3	521.3	585.9	118.2	2.2	29.8
Less than 16	100.1	57.3	129.8	372.9	19.2	--	68.6
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4
Distance to road (miles)							
Less than 1/4	1,532.7	570.6	1,865.2	1,511.2	318.9	2.2	88.6
1/4-3/4	1,255.7	562.1	1,742.6	1,417.3	264.4	--	66.4
More than 3/4	70.3	107.9	389.1	333.0	58.3	--	5.4
All classes	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4

Table 7.--Area of timberland by forest type and operability class, Wisconsin, 1983

(In thousand acres)

Forest type	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack pine	546.5	--	210.7	164.2	171.6
Red pine	478.2	12.8	149.0	191.3	125.1
White pine	225.6	3.7	109.5	88.3	24.1
Balsam fir	419.4	--	173.3	128.0	118.1
White spruce	61.4	--	28.6	14.6	18.2
Black spruce	273.0	--	23.4	65.9	183.7
Northern white-cedar	370.7	1.9	201.4	118.9	48.5
Tamarack	222.7	--	27.4	76.9	118.4
Oak-hickory	2,858.7	78.7	1,500.1	789.5	490.4
Elm-ash-soft maple	1,240.6	12.5	464.0	463.7	300.4
Maple-birch	3,996.9	124.1	2,018.1	1,151.0	703.7
Aspen	3,261.5	23.8	942.4	1,021.3	1,274.0
Paper birch	641.6	3.4	270.7	225.0	142.5
Exotic	2.2	--	--	--	2.2
Nonstocked	160.4	--	--	--	160.4
All types	14,759.4	260.9	6,118.6	4,498.6	3,881.3

Table 8.--Area of timberland in operability class II (medium) by limiting factor and forest type, Wisconsin, 1983

(In thousand acres)

Limiting factor	All types	Forest type					
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce
1	413.0	10.9	22.0	24.1	3.6	--	--
2	21.5	2.3	--	--	--	--	--
3	14.9	--	--	--	--	--	--
4	67.5	--	--	--	--	--	--
5	237.1	5.5	30.8	3.9	2.1	10.0	--
6	--	--	--	--	--	--	--
7	309.6	3.7	--	7.7	--	--	--
1 & 2	69.6	1.7	--	1.8	7.2	--	1.7
1 & 3	16.6	--	--	--	--	--	--
1 & 4	170.9	2.2	1.8	2.1	--	--	--
1 & 5	360.4	19.4	33.4	16.7	9.2	1.7	3.5
1 & 6	--	--	--	--	--	--	--
1 & 7	342.0	3.1	7.0	8.9	7.4	--	--
2 & 3	29.1	--	--	--	--	--	--
2 & 4	34.2	2.4	--	--	--	--	--
2 & 5	16.3	--	--	--	10.4	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	33.9	--	--	--	1.9	--	--
3 & 4	4.5	--	--	--	--	--	--
3 & 5	144.9	1.9	4.1	--	--	1.7	--
3 & 6	--	--	--	--	--	--	--
3 & 7	17.3	--	--	--	--	--	--
4 & 5	19.7	--	--	--	--	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	110.8	1.8	--	--	--	--	--
5 & 6	24.8	2.2	2.6	--	3.8	--	--
5 & 7	246.6	9.0	2.2	7.6	5.8	1.7	--
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	88.2	1.9	--	--	5.8	--	--
1 & 2 & 4	78.9	1.6	1.0	--	--	--	--
1 & 2 & 5	13.7	6.2	--	--	1.9	--	--
1 & 2 & 6	1.6	--	--	--	--	--	--
1 & 2 & 7	69.3	1.9	3.6	--	3.6	--	--
1 & 3 & 4	5.5	--	--	--	--	--	--
1 & 3 & 5	259.1	8.1	6.3	--	1.9	--	--
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	22.1	--	--	--	--	--	--
1 & 4 & 5	55.8	--	--	--	--	--	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	147.1	2.2	--	2.3	--	--	--
1 & 5 & 6	59.0	1.7	7.7	13.0	3.7	--	--
1 & 5 & 7	264.0	1.8	5.7	5.8	13.3	--	1.7
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	18.3	--	--	--	--	--	--
2 & 3 & 5	29.0	4.1	2.4	--	--	--	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	43.9	--	--	1.7	1.9	--	--
2 & 4 & 5	3.1	--	--	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	45.6	--	--	--	--	--	--
2 & 5 & 6	5.4	--	--	--	--	--	--
2 & 5 & 7	2.7	--	--	--	--	2.7	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	27.0	--	--	--	--	--	--
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	7.7	--	--	--	--	--	--
3 & 5 & 6	84.4	32.8	--	--	--	--	1.7
3 & 5 & 7	222.2	9.9	1.8	--	--	--	--
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	1.9	--	--	--	--	--	--
4 & 5 & 7	35.5	--	--	--	2.0	--	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	36.6	1.7	--	--	1.8	--	--
4 or more	1,785.8	70.7	16.6	13.9	86.0	10.8	14.8
All factors	6,118.6	210.7	149.0	109.5	173.3	28.6	23.4

(Table 8 continued on next page)

(Table 8 continued)

Limiting factor	Forest type						
	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch
1	--	--	122.3	22.8	153.7	37.5	16.1
2	--	--	13.7	1.9	3.6	--	--
3	--	--	2.4	--	4.4	8.1	--
4	--	--	25.2	8.0	32.4	1.9	--
5	5.4	--	34.0	4.1	112.6	21.6	7.1
6	--	--	--	--	--	--	--
7	5.5	--	76.9	21.5	157.9	29.2	7.2
1 & 2	1.8	--	43.8	1.9	1.7	5.4	2.6
1 & 3	--	--	5.1	--	2.5	7.3	1.7
1 & 4	--	--	76.8	8.8	70.2	6.3	2.7
1 & 5	8.5	1.9	44.2	31.5	110.0	54.0	26.4
1 & 6	--	--	--	--	--	--	--
1 & 7	5.2	--	103.6	24.9	131.5	41.4	9.0
2 & 3	--	--	4.5	2.5	4.4	13.1	4.6
2 & 4	--	--	21.9	1.7	8.2	--	--
2 & 5	--	--	2.8	--	3.1	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	--	--	10.3	1.7	11.0	6.3	2.7
3 & 4	--	--	4.5	--	--	--	--
3 & 5	--	--	17.1	8.2	54.1	47.0	10.8
3 & 6	--	--	--	--	--	--	--
3 & 7	--	--	2.6	--	3.7	9.2	1.8
4 & 5	--	--	7.2	1.7	10.8	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	1.8	--	51.2	6.2	43.3	6.5	--
5 & 6	2.0	--	8.7	1.8	3.7	--	--
5 & 7	2.2	--	58.7	4.1	110.3	34.0	11.0
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	--	--	24.0	13.7	16.3	20.9	5.6
1 & 2 & 4	--	--	51.0	2.0	21.4	--	1.9
1 & 2 & 5	--	--	5.6	--	--	--	--
1 & 2 & 6	1.6	--	--	--	--	--	--
1 & 2 & 7	--	--	31.8	8.2	12.4	7.8	--
1 & 3 & 4	--	--	5.5	--	--	--	--
1 & 3 & 5	--	--	29.4	22.8	76.4	81.4	32.8
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	--	--	2.3	4.5	7.7	7.6	--
1 & 4 & 5	7.5	--	10.9	7.1	26.8	3.5	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	1.8	--	65.5	9.3	51.1	8.0	6.9
1 & 5 & 6	8.0	1.6	6.7	9.2	2.0	--	5.4
1 & 5 & 7	3.7	1.9	55.9	18.5	82.5	56.2	17.0
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	--	--	9.8	1.9	1.9	2.8	1.9
2 & 3 & 5	--	--	4.4	4.6	11.8	1.7	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	--	2.2	10.2	--	12.9	15.0	--
2 & 4 & 5	--	--	3.1	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	1.7	--	32.0	2.5	9.4	--	--
2 & 5 & 6	--	--	3.2	2.2	--	--	--
2 & 5 & 7	--	--	--	--	--	--	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	--	--	8.3	--	12.7	--	6.0
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	--	--	1.8	--	1.8	4.1	--
3 & 5 & 6	12.3	--	8.4	--	19.1	6.4	3.7
3 & 5 & 7	1.8	2.0	21.9	10.6	78.1	76.0	20.1
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	--	--	--	--	1.9	--	--
4 & 5 & 7	--	--	2.2	--	24.6	6.7	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	5.2	--	5.8	6.8	15.3	--	--
4 or more	125.4	17.8	362.9	186.8	498.9	315.5	65.7
All factors	201.4	27.4	1,500.1	464.0	2,018.1	942.4	270.7

Table 9.--Area of timberland in operability class III (poor) by limiting factor and forest type, Wisconsin, 1983

(In thousand acres)

Limiting factor	All types	Forest type					
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce
1	1,188.6	46.6	63.6	52.9	51.6	10.7	22.7
2	78.6	--	--	--	--	--	1.9
3	1,089.8	58.5	43.6	3.9	13.0	--	17.2
4	342.3	3.3	1.8	7.6	--	--	--
5	17.3	1.9	2.5	--	1.8	--	1.7
6	--	--	--	--	--	--	--
7	626.7	6.0	16.1	--	32.5	2.0	1.7
1 & 2	39.7	2.2	--	2.5	--	--	--
1 & 3	220.0	8.9	20.9	11.2	--	--	2.0
1 & 4	81.7	3.5	--	4.6	--	--	--
1 & 5	2.0	--	--	--	--	--	--
1 & 6	--	--	--	--	--	--	--
1 & 7	60.8	1.9	--	2.0	1.8	--	7.2
2 & 3	127.8	5.7	1.8	--	12.7	--	4.0
2 & 4	61.2	--	--	--	--	--	--
2 & 5	--	--	--	--	--	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	5.9	--	--	--	--	--	--
3 & 4	57.1	--	--	--	--	--	1.9
3 & 5	72.8	13.1	17.6	--	3.8	--	1.8
3 & 6	--	--	--	--	--	--	--
3 & 7	128.5	--	1.9	--	3.7	--	--
4 & 5	--	--	--	--	--	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	19.7	--	--	--	--	--	--
5 & 6	--	--	--	--	--	--	--
5 & 7	--	--	--	--	--	--	--
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	48.0	2.2	--	--	1.9	--	1.9
1 & 2 & 4	12.9	--	--	--	1.6	--	--
1 & 2 & 5	2.4	--	--	--	--	--	--
1 & 2 & 6	--	--	--	--	--	--	--
1 & 2 & 7	--	--	--	--	--	--	--
1 & 3 & 4	10.1	--	--	--	--	--	--
1 & 3 & 5	16.3	2.3	8.0	--	--	--	--
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	6.6	--	--	--	--	--	--
1 & 4 & 5	--	--	--	--	--	--	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	--	--	--	--	--	--	--
1 & 5 & 6	--	--	--	--	--	--	--
1 & 5 & 7	3.6	--	--	--	--	--	--
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	51.1	--	--	--	--	--	--
2 & 3 & 5	16.8	2.1	1.9	--	--	--	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	10.9	--	--	--	--	--	--
2 & 4 & 5	--	--	--	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	--	--	--	--	--	--	--
2 & 5 & 6	--	--	--	--	--	--	--
2 & 5 & 7	--	--	--	--	--	--	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	--	--	--	--	--	--	--
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	1.7	--	--	--	--	--	--
3 & 5 & 6	9.3	1.8	--	--	1.9	--	--
3 & 5 & 7	3.5	--	--	--	1.7	--	--
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	--	--	--	--	--	--	--
4 & 5 & 7	--	--	--	--	--	--	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	--	--	--	--	--	--	--
4 or more	84.9	4.2	11.6	3.6	--	1.9	1.9
All factors	4,498.6	164.2	191.3	88.3	128.0	14.6	65.9

(Table 9 continued on next page)

(Table 9 continued)

Limiting factor	Forest type						
	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch
1	24.7	8.2	196.2	168.4	315.2	185.8	42.0
2	--	1.7	27.2	10.2	10.7	25.1	1.8
3	29.0	27.7	155.6	55.8	195.9	402.1	87.5
4	1.8	--	167.4	22.2	102.3	26.6	9.3
5	--	--	5.8	--	1.7	1.9	--
6	--	--	--	--	--	--	--
7	30.9	1.8	39.2	58.2	305.3	108.3	24.7
1 & 2	--	3.7	8.7	11.7	7.2	3.7	--
1 & 3	8.1	5.9	25.0	15.0	26.6	86.1	10.3
1 & 4	2.6	--	24.0	12.0	21.3	9.0	4.7
1 & 5	--	--	--	--	2.0	--	--
1 & 6	--	--	--	--	--	--	--
1 & 7	1.8	1.9	6.2	12.3	15.1	7.3	3.3
2 & 3	--	5.5	15.4	21.6	22.6	29.8	8.7
2 & 4	--	--	37.4	4.7	14.8	4.3	--
2 & 5	--	--	--	--	--	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	--	--	2.5	1.7	--	1.7	--
3 & 4	--	--	13.3	4.4	18.5	12.2	6.8
3 & 5	3.5	8.8	2.2	4.1	7.4	8.9	1.6
3 & 6	--	--	--	--	--	--	--
3 & 7	3.5	5.4	9.9	5.3	27.3	52.8	18.7
4 & 5	--	--	--	--	--	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	--	--	4.7	--	5.5	7.6	1.9
5 & 6	--	--	--	--	--	--	--
5 & 7	--	--	--	--	--	--	--
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	--	--	4.0	24.5	9.7	1.9	1.9
1 & 2 & 4	--	--	7.0	--	4.3	--	--
1 & 2 & 5	--	--	--	2.4	--	--	--
1 & 2 & 6	--	--	--	--	--	--	--
1 & 2 & 7	--	--	--	--	--	--	--
1 & 3 & 4	1.8	--	2.2	2.2	1.7	2.2	--
1 & 3 & 5	--	2.5	1.8	--	--	1.7	--
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	--	--	--	2.7	--	3.9	--
1 & 4 & 5	--	--	--	--	--	--	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	--	--	--	--	--	--	--
1 & 5 & 6	--	--	--	--	--	--	--
1 & 5 & 7	--	--	1.7	--	--	1.9	--
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	--	2.1	27.9	--	12.8	8.3	--
2 & 3 & 5	--	--	--	6.2	1.8	4.8	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	1.7	--	--	1.8	3.7	3.7	--
2 & 4 & 5	--	--	--	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	--	--	--	--	--	--	--
2 & 5 & 6	--	--	--	--	--	--	--
2 & 5 & 7	--	--	--	--	--	--	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	--	--	--	--	--	--	--
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	--	--	--	1.7	--	--	--
3 & 5 & 6	5.6	--	--	--	--	--	--
3 & 5 & 7	--	--	--	--	--	--	1.8
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	--	--	--	--	--	--	--
4 & 5 & 7	--	--	--	--	--	--	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	--	--	--	--	--	--	--
4 or more	3.9	1.7	4.2	14.6	17.6	19.7	--
All factors	118.9	76.9	789.5	463.7	1,151.0	1,021.3	225.0

Table 10.--Area of timberland by forest type, average growing-stock volume and operability class, Wisconsin, 1983

(In thousand acres)

Forest type and average growing-stock volume per acre (cu.ft. per acre)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack pine					
More than 1,000	199.6	--	137.8	57.4	4.4
400-1,000	204.7	--	72.9	90.4	41.4
Less than 400	142.2	--	--	16.4	125.8
All classes	546.5	--	210.7	164.2	171.6
Red pine					
More than 1,000	321.2	12.8	142.0	164.3	2.1
400-1,000	41.6	--	7.0	11.7	22.9
Less than 400	115.4	--	--	15.3	100.1
All classes	478.2	12.8	149.0	191.3	125.1
White pine					
More than 1,000	150.2	3.7	96.1	50.4	--
400-1,000	54.2	--	13.4	31.8	9.0
Less than 400	21.2	--	--	6.1	15.1
All classes	225.6	3.7	109.5	88.3	24.1
Balsam fir					
More than 1,000	153.7	--	83.1	66.3	4.3
400-1,000	187.0	--	90.2	45.5	51.3
Less than 400	78.7	--	--	16.2	62.5
All classes	419.4	--	173.3	128.0	118.1
White spruce					
More than 1,000	36.7	--	25.9	10.8	--
400-1,000	8.1	--	2.7	3.8	1.6
Less than 400	16.6	--	--	--	16.6
All classes	61.4	--	28.6	14.6	18.2
Black spruce					
More than 1,000	38.9	--	11.2	27.7	--
400-1,000	63.7	--	12.2	28.5	23.0
Less than 400	170.4	--	--	9.7	160.7
All classes	273.0	--	23.4	65.9	183.7
Northern white-cedar					
More than 1,000	216.5	1.9	141.5	73.1	--
400-1,000	123.1	--	59.9	40.2	23.0
Less than 400	31.1	--	--	5.6	25.5
All classes	370.7	1.9	201.4	118.9	48.5
Tamarack					
More than 1,000	28.9	--	11.5	15.8	1.6
400-1,000	86.8	--	15.9	46.4	24.5
Less than 400	107.0	--	--	14.7	92.3
All classes	222.7	--	27.4	76.9	118.4

(Table 10 continued on next page)

(Table 10 continued)

Forest type and average growing-stock volume per acre (cu.ft. per acre)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Oak-hickory					
More than 1,000	1,346.4	78.7	937.6	321.8	8.3
400-1,000	1,027.7	--	562.5	333.4	131.8
Less than 400	484.6	--	--	134.3	350.3
All classes	2,858.7	78.7	1,500.1	789.5	490.4
Elm-ash-soft maple					
More than 1,000	506.2	12.5	306.0	180.2	7.5
400-1,000	434.4	--	158.0	184.1	92.3
Less than 400	300.0	--	--	99.4	200.6
All classes	1,240.6	12.5	464.0	463.7	300.4
Maple-birch					
More than 1,000	2,447.8	124.1	1,647.4	644.5	31.8
400-1,000	1,076.9	--	370.7	401.3	304.9
Less than 400	472.2	--	--	105.2	367.0
All classes	3,996.9	124.1	2,018.1	1,151.0	703.7
Aspen					
More than 1,000	1,235.2	23.8	693.3	472.9	45.2
400-1,000	999.6	--	249.1	445.4	305.1
Less than 400	1,026.7	--	--	103.0	923.7
All classes	3,261.5	23.8	942.4	1,021.3	1,274.0
Paper birch					
More than 1,000	340.3	3.4	216.1	111.3	9.5
400-1,000	219.2	--	54.6	101.3	63.3
Less than 400	82.1	--	--	12.4	69.7
All classes	641.6	3.4	270.7	225.0	142.5
Exotic					
More than 1,000	--	--	--	--	--
400-1,000	--	--	--	--	--
Less than 400	2.2	--	--	--	2.2
All classes	2.2	--	--	--	2.2
Nonstocked					
More than 1,000	--	--	--	--	--
400-1,000	1.9	--	--	--	1.9
Less than 400	158.5	--	--	--	158.5
All classes	160.4	--	--	--	160.4
All types					
More than 1,000	7,021.6	260.9	4,449.5	2,196.5	114.7
400-1,000	4,528.9	--	1,669.1	1,763.8	1,096.0
Less than 400	3,208.9	--	--	538.3	2,670.6
All classes	14,759.4	260.9	6,118.6	4,498.6	3,881.3

Table 11.--Area of timberland by forest type, stand-age class and operability class, Wisconsin, 1983

(In thousand acres)

Forest type and stand-age class (years)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack pine					
less than 21	132.8	--	--	4.8	128.0
21-40	190.6	--	48.4	98.6	43.6
41-60	202.6	--	143.7	58.9	--
61-80	18.6	--	16.7	1.9	--
81-100	1.9	--	1.9	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	546.5	--	210.7	164.2	171.6
Red pine					
less than 21	158.3	--	--	41.5	116.8
21-40	205.6	1.8	99.5	96.0	8.3
41-60	78.5	8.2	33.0	37.3	--
61-80	15.1	1.0	10.5	3.6	--
81-100	17.5	1.8	4.4	11.3	--
101-120	3.2	--	1.6	1.6	--
More than 120	--	--	--	--	--
All ages	478.2	12.8	149.0	191.3	125.1
White pine					
less than 21	31.2	--	--	7.1	24.1
21-40	29.1	--	10.3	18.8	--
41-60	44.8	--	23.5	21.3	--
61-80	55.3	--	36.0	19.3	--
81-100	35.3	--	15.9	19.4	--
101-120	10.1	1.9	5.8	2.4	--
More than 120	19.8	1.8	18.0	--	--
All ages	225.6	3.7	109.5	88.3	24.1
Balsam fir					
less than 21	79.6	--	--	--	79.6
21-40	93.0	--	32.4	24.0	36.6
41-60	150.3	--	86.3	62.1	1.9
61-80	65.7	--	34.1	31.6	--
81-100	16.4	--	11.7	4.7	--
101-120	7.5	--	3.7	3.8	--
More than 120	6.9	--	5.1	1.8	--
All ages	419.4	--	173.3	128.0	118.1
White spruce					
less than 21	19.8	--	1.7	1.9	16.2
21-40	24.6	--	20.4	2.2	2.0
41-60	15.0	--	6.5	8.5	--
61-80	2.0	--	--	2.0	--
81-100	--	--	--	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	61.4	--	28.6	14.6	18.2

(Table 11 continued on next page)

(Table 11 continued)

Forest type and stand-age class (years)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Black spruce					
less than 21	71.0	--	--	--	71.0
21-40	106.8	--	1.7	7.6	97.5
41-60	41.9	--	6.0	20.7	15.2
61-80	39.0	--	6.9	32.1	--
81-100	12.4	--	8.8	3.6	--
101-120	--	--	--	--	--
More than 120	1.9	--	--	1.9	--
All ages	273.0	--	23.4	65.9	183.7
Northern white-cedar					
less than 21	24.3	--	1.8	1.8	20.7
21-40	26.1	--	--	6.1	20.0
41-60	80.9	--	55.4	17.7	7.8
61-80	68.4	--	37.8	30.6	--
81-100	95.5	--	54.6	40.9	--
101-120	30.8	1.9	19.9	9.0	--
More than 120	44.7	--	31.9	12.8	--
All ages	370.7	1.9	201.4	118.9	48.5
Tamarack					
less than 21	71.1	--	--	--	71.1
21-40	53.8	--	--	6.5	47.3
41-60	38.6	--	3.5	35.1	--
61-80	35.2	--	16.2	19.0	--
81-100	16.6	--	7.7	8.9	--
101-120	3.8	--	--	3.8	--
More than 120	3.6	--	--	3.6	--
All ages	222.7	--	27.4	76.9	118.4
Oak-hickory					
less than 21	446.3	--	3.1	1.8	441.4
21-40	221.8	--	82.7	90.1	49.0
41-60	761.1	25.1	453.4	282.6	--
61-80	557.9	22.8	371.7	163.4	--
81-100	426.8	14.8	303.8	108.2	--
101-120	208.9	8.3	146.0	54.6	--
More than 120	235.9	7.7	139.4	88.8	--
All ages	2,858.7	78.7	1,500.1	789.5	490.4
Elm-ash-soft maple					
less than 21	249.9	--	--	4.5	245.4
21-40	204.9	--	68.0	85.5	51.4
41-60	284.2	1.9	110.4	168.3	3.6
61-80	262.8	6.4	149.9	106.5	--
81-100	149.1	2.3	76.0	70.8	--
101-120	50.2	1.9	33.6	14.7	--
More than 120	39.5	--	26.1	13.4	--
All ages	1,240.6	12.5	464.0	463.7	300.4

(Table 11 continued on next page)

(Table 11 continued)

Forest type and stand-age class (years)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Maple-birch					
less than 21	577.6	--	2.0	5.1	570.5
21-40	490.8	6.2	162.7	192.1	129.8
41-60	1,294.2	18.1	809.5	463.2	3.4
61-80	721.1	30.3	497.2	193.6	--
81-100	441.0	26.4	275.6	139.0	--
101-120	215.9	14.8	120.5	80.6	--
More than 120	256.3	28.3	150.6	77.4	--
All ages	3,996.9	124.1	2,018.1	1,151.0	703.7
Aspen					
less than 21	1,102.3	--	6.3	15.7	1,080.3
21-40	783.5	--	221.3	368.5	193.7
41-60	1,107.4	14.2	535.9	557.3	--
61-80	225.8	9.6	149.7	66.5	--
81-100	42.5	--	29.2	13.3	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	3,261.5	23.8	942.4	1,021.3	1,274.0
Paper birch					
less than 21	110.4	--	--	--	110.4
21-40	154.8	--	43.7	81.3	29.8
41-60	279.1	3.1	161.1	112.6	2.3
61-80	91.3	--	64.0	27.3	--
81-100	2.2	0.3	--	1.9	--
101-120	3.8	--	1.9	1.9	--
More than 120	--	--	--	--	--
All ages	641.6	3.4	270.7	225.0	142.5
Exotic					
less than 21	2.2	--	--	--	2.2
21-40	--	--	--	--	--
41-60	--	--	--	--	--
61-80	--	--	--	--	--
81-100	--	--	--	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	2.2	--	--	--	2.2
Nonstocked					
less than 21	160.4	--	--	--	160.4
21-40	--	--	--	--	--
41-60	--	--	--	--	--
61-80	--	--	--	--	--
81-100	--	--	--	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	160.4	--	--	--	160.4
All types					
less than 21	3,237.2	--	14.9	84.2	3,138.1
21-40	2,585.4	8.0	791.1	1,077.3	709.0
41-60	4,378.6	70.6	2,428.2	1,845.6	34.2
61-80	2,158.2	70.1	1,390.7	697.4	--
81-100	1,257.2	45.6	789.6	422.0	--
101-120	534.2	28.8	333.0	172.4	--
More than 120	608.6	37.8	371.1	199.7	--
All ages	14,759.4	260.9	6,118.6	4,498.6	3,881.3

Table 12.--Area of timberland by forest type, ownership class and operability class, Wisconsin, 1983

(In thousand acres)

Forest type and ownership class	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack Pine					
National forest	50.3	--	47.9	1.9	0.5
Other federal	24.6	--	11.0	2.2	11.4
Indian	5.6	--	4.0	1.6	--
State	33.4	--	7.3	8.3	17.8
County and municipal	137.2	--	44.1	49.3	43.8
Forest industry	69.1	--	19.2	24.9	25.0
Farmer	44.6	--	20.7	15.0	8.9
Miscellaneous private	181.7	--	56.5	61.0	64.2
All owners	546.5	--	210.7	164.2	171.6
Red pine					
National forest	103.4	9.2	45.0	25.7	23.5
Other federal	9.0	--	2.1	--	6.9
Indian	8.9	--	7.1	1.8	--
State	29.1	--	16.0	9.5	3.6
County and municipal	80.8	1.8	23.1	32.5	23.4
Forest industry	49.7	--	14.8	4.2	30.7
Farmer	35.2	--	11.4	21.9	1.9
Miscellaneous private	162.1	1.8	29.5	95.7	35.1
All owners	478.2	12.8	149.0	191.3	125.1
White pine					
National forest	15.2	--	15.2	--	--
Other federal	6.9	--	4.4	--	2.5
Indian	17.4	1.8	12.1	3.5	--
State	9.6	--	5.8	1.6	2.2
County and municipal	24.4	--	8.7	13.5	2.2
Forest industry	16.9	--	9.5	4.0	3.4
Farmer	49.0	--	16.9	25.3	6.8
Miscellaneous private	86.2	1.9	36.9	40.4	7.0
All owners	225.6	3.7	109.5	88.3	24.1
Balsam fir					
National forest	66.0	--	30.2	29.3	6.5
Other federal	--	--	--	--	--
Indian	4.1	--	--	4.1	--
State	21.7	--	9.1	7.2	5.4
County and municipal	71.6	--	27.3	27.8	16.5
Forest industry	42.1	--	21.2	5.3	15.6
Farmer	35.6	--	9.5	7.5	18.6
Miscellaneous private	178.3	--	76.0	46.8	55.5
All owners	419.4	--	173.3	128.0	118.1
White spruce					
National forest	31.2	--	21.4	6.6	3.2
Other federal	--	--	--	--	--
Indian	--	--	--	--	--
State	1.7	--	--	--	1.7
County and municipal	1.8	--	--	--	1.8
Forest industry	5.7	--	1.7	2.0	2.0
Farmer	--	--	--	--	--
Miscellaneous private	21.0	--	5.5	6.0	9.5
All owners	61.4	--	28.6	14.6	18.2

(Table 12 continued on next page)

(Table 12 continued)

Forest type and ownership class	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Black spruce					
National forest	36.5	--	0.8	14.9	20.8
Other federal	2.2	--	--	--	2.2
Indian	3.6	--	--	3.6	--
State	28.1	--	5.3	4.8	18.0
County and municipal	58.9	--	--	22.0	36.9
Forest industry	38.3	--	6.9	3.7	27.7
Farmer	19.2	--	--	2.0	17.2
Miscellaneous private	86.2	--	10.4	14.9	60.9
All owners	273.0	--	23.4	65.9	183.7
Northern white-cedar					
National forest	65.6	--	47.0	14.9	3.7
Other federal	--	--	--	--	--
Indian	17.8	--	12.7	3.4	1.7
State	18.9	1.9	11.4	5.6	--
County and municipal	46.2	--	24.7	14.3	7.2
Forest industry	38.0	--	20.1	14.4	3.5
Farmer	57.7	--	29.9	11.1	16.7
Miscellaneous private	126.5	--	55.6	55.2	15.7
All owners	370.7	1.9	201.4	118.9	48.5
Tamarack					
National forest	16.9	--	2.0	13.5	1.4
Other federal	--	--	--	--	--
Indian	1.6	--	--	--	1.6
State	22.2	--	2.1	5.4	14.7
County and municipal	21.5	--	--	10.2	11.3
Forest industry	16.2	--	2.0	7.1	7.1
Farmer	41.4	--	4.0	11.1	26.3
Miscellaneous private	102.9	--	17.3	29.6	56.0
All owners	222.7	--	27.4	76.9	118.4
Oak-hickory					
National forest	45.2	--	19.4	23.5	2.3
Other federal	46.6	--	22.2	9.0	15.4
Indian	23.1	3.6	14.1	3.6	1.8
State	68.9	6.7	31.2	13.6	17.4
County and municipal	224.5	2.0	54.1	100.8	67.6
Forest industry	78.1	2.5	20.8	8.4	46.4
Farmer	1,262.6	32.8	798.1	313.7	118.0
Miscellaneous private	1,109.7	31.1	540.2	316.9	221.5
All owners	2,858.7	78.7	1,500.1	789.5	490.4
Elm-ash-soft maple					
National forest	25.3	--	18.9	2.7	3.7
Other federal	27.7	--	10.8	14.1	2.8
Indian	14.9	--	7.2	5.9	1.8
State	60.3	--	24.1	18.0	18.2
County and municipal	169.6	1.8	67.0	69.6	31.2
Forest industry	86.8	--	38.7	25.8	22.3
Farmer	357.6	4.6	123.9	148.8	80.3
Miscellaneous private	498.4	6.1	173.4	178.8	140.1
All owners	1,240.6	12.5	464.0	463.7	300.4

(Table 12 continued on next page)

(Table 12 continued)

Forest type and ownership class	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Maple-birch					
National forest	432.1	16.3	275.4	136.6	3.8
Other federal	7.4	--	--	5.2	2.2
Indian	164.5	26.9	79.5	54.7	3.4
State	109.9	--	52.8	35.3	21.8
County and municipal	467.1	4.0	209.6	172.2	81.3
Forest industry	440.6	28.1	225.0	136.7	50.8
Farmer	958.1	11.4	429.1	259.9	257.7
Miscellaneous private	1,417.2	37.4	746.7	350.4	282.7
All owners	3,996.9	124.1	2,018.1	1,151.0	703.7
Aspen					
National forest	315.9	--	88.5	75.3	152.1
Other federal	40.2	--	2.1	21.9	16.2
Indian	83.0	--	30.9	33.3	18.8
State	140.0	--	35.3	35.3	69.4
County and municipal	743.8	1.8	175.1	243.7	323.2
Forest industry	222.4	--	66.0	49.3	107.1
Farmer	473.0	2.4	160.5	152.8	157.3
Miscellaneous private	1,243.2	19.6	384.0	409.7	429.9
All owners	3,261.5	23.8	942.4	1,021.3	1,274.0
Paper birch					
National forest	38.7	1.7	10.2	21.5	5.3
Other federal	6.1	--	1.9	1.9	2.3
Indian	5.4	--	3.8	1.6	--
State	20.3	--	13.6	4.9	1.8
County and municipal	116.1	--	32.3	56.1	27.7
Forest industry	39.6	--	21.9	15.9	1.8
Farmer	143.2	--	58.6	33.2	51.4
Miscellaneous private	272.2	1.7	128.4	89.9	52.2
All owners	641.6	3.4	270.7	225.0	142.5
Exotic					
National forest	--	--	--	--	--
Other federal	--	--	--	--	--
Indian	--	--	--	--	--
State	--	--	--	--	--
County and municipal	--	--	--	--	--
Forest industry	--	--	--	--	--
Farmer	--	--	--	--	--
Miscellaneous private	2.2	--	--	--	2.2
All owners	2.2	--	--	--	2.2
Nonstocked					
National forest	--	--	--	--	--
Other federal	5.5	--	--	--	5.5
Indian	3.8	--	--	--	3.8
State	5.3	--	--	--	5.3
County and municipal	16.3	--	--	--	16.3
Forest industry	12.5	--	--	--	12.5
Farmer	36.5	--	--	--	36.5
Miscellaneous private	80.5	--	--	--	80.5
All owners	160.4	--	--	--	160.4
All types					
National forest	1,242.3	27.2	621.9	366.4	226.8
Other federal	176.2	--	54.5	54.3	67.4
Indian	353.7	32.3	171.4	117.1	32.9
State	569.4	8.6	214.0	149.5	197.3
County and municipal	2,179.8	11.4	666.0	812.0	690.4
Forest industry	1,156.0	30.6	467.8	301.7	355.9
Farmer	3,513.7	51.2	1,662.6	1,002.3	797.6
Miscellaneous private	5,568.3	99.6	2,260.4	1,695.3	1,513.0
All owners	14,759.4	260.9	6,118.6	4,498.6	3,881.3

Table 13.--Area of timberland by distance from major wood-using center and operability class, Michigan, 1980

(In thousand acres)

Wood-using center and distance (miles)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Cornell-Stanley					
Less than 20	326.8	--	124.5	89.4	112.9
20-50	1,763.9	25.5	627.5	641.9	469.0
More than 50	12,668.7	235.4	5,366.6	3,767.3	3,299.4
Durand					
Less than 20	261.4	2.8	131.5	59.3	67.8
20-50	772.9	10.3	393.1	215.1	154.4
More than 50	13,725.1	247.8	5,594.0	4,224.2	3,659.1
Green Bay					
Less than 20	126.6	1.8	37.4	63.4	24.0
20-50	792.6	20.5	328.0	272.0	172.1
More than 50	13,840.2	238.6	5,753.2	4,163.2	3,685.2
Hayward					
Less than 20	542.0	6.9	225.3	191.7	118.1
20-50	2,629.0	41.5	1,050.8	837.2	699.5
More than 50	11,588.4	212.5	4,842.5	3,469.7	3,063.7
Kaukauna					
Less than 20	96.2	--	20.2	48.2	27.8
20-50	779.0	18.7	306.3	298.2	155.8
More than 50	13,884.2	242.2	5,792.1	4,152.2	3,697.7
Niagara-Peshtigo					
Less than 20	438.4	5.0	164.7	137.8	130.9
20-50	1,501.0	58.3	653.1	486.8	302.8
More than 50	12,820.0	197.6	5,300.8	3,874.0	3,447.6
Onalaska					
Less than 20	234.2	--	131.4	71.0	31.8
20-50	1,128.1	13.6	556.8	292.3	265.4
More than 50	13,397.1	247.3	5,430.4	4,135.3	3,584.1
Park Falls					
Less than 20	577.0	10.1	224.6	155.9	186.4
20-50	2,572.7	34.8	1,117.2	758.3	662.4
More than 50	11,609.7	216.0	4,776.8	3,584.4	3,032.5
Rice Lake-Spooner					
Less than 20	368.6	3.7	167.7	125.1	72.1
20-50	2,235.0	28.3	904.5	713.8	588.4
More than 50	12,155.8	228.9	5,046.4	3,659.7	3,220.8
Shawano					
Less than 20	354.4	19.8	154.2	127.5	52.9
20-50	1,661.0	58.4	684.7	593.0	324.9
More than 50	12,744.0	182.7	5,279.7	3,778.1	3,503.5
Superior					
Less than 20	169.7	3.8	43.9	53.3	68.7
20-50	1,143.7	4.8	403.0	370.9	365.0
More than 50	13,446.0	252.3	5,671.7	4,074.4	3,447.6
Tomahawk					
Less than 20	553.0	3.7	179.5	163.8	206.0
20-50	2,305.3	31.6	920.5	665.6	687.6
More than 50	11,901.1	225.6	5,018.6	3,669.2	2,987.7
Wausau					
Less than 20	343.2	9.4	148.4	91.5	93.9
20-50	2,035.0	55.7	760.9	670.5	547.9
More than 50	12,381.2	195.8	5,209.3	3,736.6	3,239.5
Wisconsin Rapids					
Less than 20	299.5	2.3	78.4	85.3	133.5
20-50	1,748.6	32.3	655.8	521.5	539.0
More than 50	12,711.3	226.3	5,384.4	3,891.8	3,208.8
Closest wood-using center					
Less than 20	4,521.4	67.6	1,781.6	1,389.4	1,282.8
20-50	8,622.1	155.4	3,569.0	2,640.3	2,257.4
More than 50	1,615.9	37.9	768.0	468.9	341.1

Table 14.--Growing-stock volume on timberland by operability class component and forest type, Wisconsin, 1983

(In thousand cubic feet)

Operability class component	All types	Forest type							
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack
Stand area (acres)									
More than 60	5,451,076	166,179	153,834	66,367	75,193	45,083	8,100	132,645	21,146
10-60	7,688,624	197,442	358,637	182,431	234,159	32,086	67,501	272,900	69,916
Less than 10	2,358,485	78,059	209,341	120,291	86,449	21,080	48,899	56,109	23,012
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074
Growing-stock volume (cubic feet/acre)									
More than 1,000	11,764,926	280,772	686,816	326,850	242,274	90,975	59,957	364,607	40,493
400-1,000	3,222,509	141,314	29,887	40,142	135,975	5,946	41,461	92,693	58,082
Less than 400	510,750	19,594	5,109	2,097	17,552	1,328	23,082	4,354	15,499
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074
Sawtimber volume (board feet/acre)									
More than 2,500	8,589,858	152,031	434,707	339,402	205,215	68,898	41,386	225,386	12,431
700-2,500	4,476,394	186,238	98,350	14,415	144,233	27,009	34,916	164,267	38,169
Less than 700	2,431,933	103,411	188,755	15,272	46,353	2,342	48,198	72,001	63,474
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074
Percent cull trees (percent)									
Less than 20	12,204,603	382,729	695,826	326,319	360,125	95,420	114,736	375,928	106,984
20-50	2,714,556	51,611	21,852	31,073	34,231	1,876	7,809	82,055	6,313
More than 50	579,026	7,340	4,134	11,697	1,445	953	1,955	3,671	777
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074
Average d.b.h. of growing-stock trees (inches)									
More than 9	5,845,764	76,472	149,027	222,871	71,203	8,573	5,850	64,743	4,545
6-9	9,398,590	335,399	524,314	146,218	316,167	88,206	102,444	378,103	96,213
Less than 6	253,831	29,809	48,471	--	8,431	1,470	16,206	18,808	13,316
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074
Average merchantable height of growing-stock trees (feet)									
More than 28	12,797,202	221,409	455,150	317,811	239,724	72,116	56,780	141,305	42,698
16-28	2,681,400	218,521	266,488	51,278	155,139	24,663	67,482	312,675	70,672
Less than 16	19,583	1,750	174	--	938	1,470	238	7,674	704
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074
Distance to road (miles)									
Less than 1/4	7,484,081	306,394	554,775	225,276	139,616	66,407	41,507	198,268	38,278
1/4-3/4	6,706,844	125,931	126,754	139,011	199,630	25,725	67,886	217,180	67,451
More than 3/4	1,307,260	9,355	40,283	4,802	56,555	6,117	15,107	46,206	8,345
All classes	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074

(Table 14 continued on next page)

(Table 14 continued)

Operability class component	Forest type						
	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Stand area (acres)							
More than 60	1,096,863	244,519	2,260,532	977,814	197,214	556	5,031
10-60	1,556,369	622,320	2,233,708	1,415,444	439,413	--	6,298
Less than 10	323,270	294,142	551,074	448,870	92,616	--	5,273
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602
Growing-stock volume (cubic feet/acre)							
More than 1,000	2,144,090	804,292	4,189,265	1,976,360	558,175	--	--
400-1,000	735,332	298,239	773,603	712,154	156,366	--	1,315
Less than 400	97,080	58,450	82,446	153,614	14,702	556	15,287
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602
Sawtimber volume (board feet/acre)							
More than 2,500	2,039,337	623,911	3,299,286	868,795	279,073	--	--
700-2,500	647,249	381,690	1,346,740	1,126,555	263,633	--	2,930
Less than 700	289,916	155,380	399,288	846,778	186,537	556	13,672
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602
Percent cull trees (percent)							
Less than 20	1,922,812	866,745	3,897,529	2,454,240	600,277	--	4,933
20-50	818,447	249,265	978,813	319,208	108,041	556	3,406
More than 50	235,243	44,971	168,972	68,680	20,925	--	8,263
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602
Average d.b.h. of growing-stock trees (inches)							
More than 9	1,772,975	442,250	2,236,905	639,230	144,930	--	6,190
6-9	1,188,157	701,993	2,782,366	2,150,874	577,724	--	10,412
Less than 6	15,370	16,738	26,043	52,024	6,589	556	--
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602
Average merchantable height of growing-stock trees (feet)							
More than 28	2,663,277	906,660	4,580,979	2,455,932	632,501	--	10,860
16-28	311,247	254,167	462,720	383,308	96,742	556	5,742
Less than 16	1,978	154	1,615	2,888	--	--	--
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602
Distance to road (miles)							
Less than 1/4	1,524,655	519,275	2,238,871	1,267,355	355,230	556	7,618
1/4-3/4	1,360,370	528,132	2,230,238	1,296,937	312,902	--	8,697
More than 3/4	91,477	113,574	576,205	277,836	61,111	--	287
All classes	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602

Table 15.--Growing-stock volume on timberland by forest type and operability class, Wisconsin, 1983

(In thousand cubic feet)

Forest type	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack pine	441,680	--	256,889	140,740	44,051
Red pine	721,812	25,606	311,511	362,931	21,764
White pine	369,089	12,371	219,746	128,464	8,508
Balsam fir	395,801	--	201,462	144,077	50,262
White spruce	98,249	--	69,531	26,741	1,977
Black spruce	124,500	--	25,657	64,459	34,384
Northern white-cedar	461,654	2,175	299,633	141,235	18,611
Tamarack	114,074	--	31,408	54,755	27,911
Oak-hickory	2,976,502	143,637	1,947,003	742,792	143,070
Elm-ash-soft maple	1,160,981	22,376	594,578	449,279	94,748
Maple-birch	5,045,314	247,137	3,135,576	1,381,808	280,793
Aspen	2,842,128	40,516	1,352,143	1,069,847	379,622
Paper birch	729,243	4,990	406,702	255,328	62,223
Exotic	556	--	--	--	556
Nonstocked	16,602	--	--	--	16,602
All types	15,498,185	498,808	8,851,839	4,962,456	1,185,082

Table 16.--Growing-stock volume on timberland in operability class II (medium) by limiting factor and forest type, Wisconsin, 1983

(In thousand cubic feet)

Limiting factor	All types	Forest type					
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce
1	760,550	17,915	44,952	67,512	6,072	--	--
2	17,342	2,045	--	--	--	--	--
3	20,149	--	--	--	--	--	--
4	97,261	--	--	--	--	--	--
5	477,935	7,317	57,769	5,855	2,228	35,153	--
6	--	--	--	--	--	--	--
7	608,830	7,727	--	23,826	--	--	--
1 & 2	55,552	1,355	--	1,799	6,173	--	1,321
1 & 3	20,461	--	--	--	--	--	--
1 & 4	241,725	3,703	3,214	2,948	--	--	--
1 & 5	685,419	28,731	75,527	35,167	13,819	3,870	5,906
1 & 6	--	--	--	--	--	--	--
1 & 7	634,138	3,572	14,553	20,918	12,492	--	--
2 & 3	22,821	--	--	--	--	--	--
2 & 4	26,556	1,559	--	--	--	--	--
2 & 5	15,760	--	--	--	10,056	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	26,771	--	--	--	1,393	--	--
3 & 4	5,404	--	--	--	--	--	--
3 & 5	238,801	2,547	13,231	--	--	2,265	--
3 & 6	--	--	--	--	--	--	--
3 & 7	20,558	--	--	--	--	--	--
4 & 5	28,410	--	--	--	--	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	170,476	2,112	--	--	--	--	--
5 & 6	37,618	2,382	6,017	--	6,002	--	--
5 & 7	483,399	11,792	10,083	15,032	14,214	4,540	--
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	59,133	933	--	--	3,881	--	--
1 & 2 & 4	61,950	1,432	677	--	--	--	--
1 & 2 & 5	12,108	5,558	--	--	1,823	--	--
1 & 2 & 6	1,589	--	--	--	--	--	--
1 & 2 & 7	57,429	1,172	2,931	--	3,140	--	--
1 & 3 & 4	6,885	--	--	--	--	--	--
1 & 3 & 5	394,848	13,600	17,291	--	2,335	--	--
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	30,233	--	--	--	--	--	--
1 & 4 & 5	81,413	--	--	--	--	--	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	219,974	3,666	--	4,692	--	--	--
1 & 5 & 6	109,831	4,171	15,195	21,274	4,625	--	--
1 & 5 & 7	508,558	2,041	9,777	7,873	21,291	--	2,514
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	12,977	--	--	--	--	--	--
2 & 3 & 5	24,134	2,881	1,713	--	--	--	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	33,317	--	--	1,289	1,684	--	--
2 & 4 & 5	2,504	--	--	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	38,384	--	--	--	--	--	--
2 & 5 & 6	4,931	--	--	--	--	--	--
2 & 5 & 7	2,476	--	--	--	--	2,476	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	34,803	--	--	--	--	--	--
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	8,752	--	--	--	--	--	--
3 & 5 & 6	129,157	49,212	--	--	--	--	1,861
3 & 5 & 7	356,474	12,800	3,236	--	--	--	--
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	2,473	--	--	--	--	--	--
4 & 5 & 7	55,292	--	--	--	2,036	--	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	62,288	3,455	--	--	3,819	--	--
4 or more	1,843,990	63,211	35,345	11,561	84,379	21,227	14,055
All factors	8,851,839	256,889	311,511	219,746	201,462	69,531	25,657

(Table 16 continued on next page)

(Table 16 continued)

Limiting factor	Forest type						
	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch
1	--	--	206,327	37,812	286,124	62,326	31,510
2	--	--	11,197	1,174	2,926	--	--
3	--	--	3,196	--	4,987	11,966	--
4	--	--	34,993	9,640	47,548	5,080	--
5	12,884	--	60,676	7,313	223,922	51,833	12,985
6	--	--	--	--	--	--	--
7	12,079	--	153,503	35,798	321,018	42,895	11,984
1 & 2	1,764	--	32,964	1,455	1,540	4,631	2,550
1 & 3	--	--	6,923	--	2,735	8,492	2,311
1 & 4	--	--	103,695	12,432	103,450	9,598	2,685
1 & 5	13,163	4,872	82,652	56,773	213,157	100,635	51,147
1 & 6	--	--	--	--	--	--	--
1 & 7	14,563	--	183,748	43,186	252,325	76,729	12,052
2 & 3	--	--	3,303	2,329	2,881	10,601	3,707
2 & 4	--	--	15,821	1,681	7,495	--	--
2 & 5	--	--	2,836	--	2,868	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	--	--	7,911	1,480	7,879	5,723	2,385
3 & 4	--	--	5,404	--	--	--	--
3 & 5	--	--	28,874	12,630	84,893	76,339	18,022
3 & 6	--	--	--	--	--	--	--
3 & 7	--	--	2,750	--	4,508	11,242	2,058
4 & 5	--	--	9,704	2,494	16,212	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	2,037	--	79,382	10,134	66,940	9,871	--
5 & 6	4,679	--	11,231	2,149	5,158	--	--
5 & 7	5,276	--	111,298	6,459	208,849	72,410	23,446
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	--	--	14,666	9,411	10,954	14,847	4,441
1 & 2 & 4	--	--	40,456	1,628	16,198	--	1,559
1 & 2 & 5	--	--	4,727	--	--	--	--
1 & 2 & 6	1,589	--	--	--	--	--	--
1 & 2 & 7	--	--	26,013	6,313	10,807	7,053	--
1 & 3 & 4	--	--	6,885	--	--	--	--
1 & 3 & 5	--	--	43,307	29,596	116,499	126,047	46,173
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	--	--	2,983	4,732	9,961	12,557	--
1 & 4 & 5	12,758	--	14,730	10,057	39,784	4,084	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	4,010	--	86,339	15,111	86,857	10,039	9,260
1 & 5 & 6	21,277	3,212	14,155	15,736	2,218	--	7,968
1 & 5 & 7	9,685	2,873	108,260	30,942	170,322	105,348	37,632
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	--	--	7,180	1,037	1,416	1,928	1,416
2 & 3 & 5	--	--	4,083	3,860	10,209	1,388	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	--	970	7,501	--	10,899	10,974	--
2 & 4 & 5	--	--	2,504	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	1,327	--	28,087	1,905	7,065	--	--
2 & 5 & 6	--	--	2,895	2,036	--	--	--
2 & 5 & 7	--	--	--	--	--	--	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	--	--	9,664	--	17,639	--	7,500
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	--	--	2,166	--	1,944	4,642	--
3 & 5 & 6	18,421	--	11,159	--	31,499	11,473	5,532
3 & 5 & 7	3,247	2,776	34,155	15,741	123,790	130,540	30,189
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	--	--	--	--	2,473	--	--
4 & 5 & 7	--	--	3,067	--	37,950	12,239	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	8,717	--	8,968	9,564	27,765	--	--
4 or more	152,157	16,705	304,665	191,970	531,912	338,613	78,190
All factors	299,633	31,408	1,947,003	594,578	3,135,576	1,352,143	406,702

Table 17.--Growing-stock volume on timberland in operability class III (poor) by limiting factor and forest type, Wisconsin, 1983

(In thousand cubic feet)

Limiting factor	All types	Forest type					
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce
1	1,630,151	50,764	138,694	97,968	69,003	19,306	33,325
2	26,346	--	--	--	--	--	369
3	1,212,576	46,691	89,433	5,544	10,120	--	13,994
4	299,350	3,910	3,780	6,748	--	--	--
5	18,237	2,624	5,600	--	2,076	--	1,732
6	--	--	--	--	--	--	--
7	965,243	5,971	32,928	--	46,390	6,117	1,200
1 & 2	12,734	811	--	647	--	--	--
1 & 3	230,727	7,587	50,220	7,806	--	--	856
1 & 4	66,413	2,316	--	4,698	--	--	--
1 & 5	2,754	--	--	--	--	--	--
1 & 6	--	--	--	--	--	--	--
1 & 7	82,076	1,516	--	4,802	1,897	--	7,707
2 & 3	37,731	1,496	480	--	4,970	--	1,000
2 & 4	18,300	--	--	--	--	--	--
2 & 5	--	--	--	--	--	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	2,045	--	--	--	--	--	--
3 & 4	34,573	--	--	--	--	--	765
3 & 5	80,045	12,464	28,338	--	3,027	--	2,452
3 & 6	--	--	--	--	--	--	--
3 & 7	131,163	--	3,384	--	3,519	--	--
4 & 5	--	--	--	--	--	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	24,451	--	--	--	--	--	--
5 & 6	--	--	--	--	--	--	--
5 & 7	--	--	--	--	--	--	--
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	13,366	824	--	--	713	--	547
1 & 2 & 4	4,204	--	--	--	486	--	--
1 & 2 & 5	901	--	--	--	--	--	--
1 & 2 & 6	--	--	--	--	--	--	--
1 & 2 & 7	--	--	--	--	--	--	--
1 & 3 & 4	5,238	--	--	--	--	--	--
1 & 3 & 5	14,165	1,364	9,095	--	--	--	--
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	4,683	--	--	--	--	--	--
1 & 4 & 5	--	--	--	--	--	--	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	--	--	--	--	--	--	--
1 & 5 & 6	--	--	--	--	--	--	--
1 & 5 & 7	3,984	--	--	--	--	--	--
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	12,830	--	--	--	--	--	--
2 & 3 & 5	5,414	522	625	--	--	--	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	3,203	--	--	--	--	--	--
2 & 4 & 5	--	--	--	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	--	--	--	--	--	--	--
2 & 5 & 6	--	--	--	--	--	--	--
2 & 5 & 7	--	--	--	--	--	--	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	--	--	--	--	--	--	--
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	730	--	--	--	--	--	--
3 & 5 & 6	8,167	1,003	--	--	938	--	--
3 & 5 & 7	2,016	--	--	--	938	--	--
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	--	--	--	--	--	--	--
4 & 5 & 7	--	--	--	--	--	--	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	--	--	--	--	--	--	--
4 or more	8,640	877	354	251	--	1,318	512
All factors	4,962,456	140,740	362,931	128,464	144,077	26,741	64,459

(Table 17 continued on next page)

(Table 17 continued)

Limiting factor	Forest type						
	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch
1	37,745	7,307	233,830	210,531	424,085	251,279	56,314
2	--	480	9,266	3,246	3,576	8,919	490
3	37,908	25,869	183,562	61,517	211,236	421,084	105,618
4	805	--	148,415	16,865	86,709	21,584	10,534
5	--	--	3,500	--	1,754	951	--
6	--	--	--	--	--	--	--
7	40,399	1,474	60,159	80,321	505,959	150,561	33,764
1 & 2	--	631	3,028	3,681	2,739	1,197	--
1 & 3	5,753	5,206	18,543	9,210	26,295	87,920	11,331
1 & 4	1,185	--	17,110	10,113	20,449	8,393	2,149
1 & 5	--	--	--	--	2,754	--	--
1 & 6	--	--	--	--	--	--	--
1 & 7	1,529	1,712	8,603	18,396	20,761	7,793	7,360
2 & 3	--	1,525	4,201	5,370	7,777	7,908	3,004
2 & 4	--	--	11,047	1,603	4,213	1,437	--
2 & 5	--	--	--	--	--	--	--
2 & 6	--	--	--	--	--	--	--
2 & 7	--	--	819	600	--	626	--
3 & 4	--	--	6,661	3,826	11,034	8,767	3,520
3 & 5	5,527	5,778	946	5,698	8,065	6,720	1,030
3 & 6	--	--	--	--	--	--	--
3 & 7	2,484	2,483	9,007	4,185	26,523	62,506	17,072
4 & 5	--	--	--	--	--	--	--
4 & 6	--	--	--	--	--	--	--
4 & 7	--	--	8,764	--	7,380	6,923	1,384
5 & 6	--	--	--	-	--	--	--
5 & 7	--	--	--	--	--	--	--
6 & 7	--	--	--	--	--	--	--
1 & 2 & 3	--	--	1,413	6,318	2,465	406	680
1 & 2 & 4	--	--	2,181	--	1,537	--	--
1 & 2 & 5	--	--	--	901	--	--	--
1 & 2 & 6	--	--	--	--	--	--	--
1 & 2 & 7	--	--	--	--	--	--	--
1 & 3 & 4	722	--	923	915	850	1,828	--
1 & 3 & 5	--	1,513	1,214	--	--	979	--
1 & 3 & 6	--	--	--	--	--	--	--
1 & 3 & 7	--	--	--	1,176	--	3,507	--
1 & 4 & 5	--	--	--	--	--	--	--
1 & 4 & 6	--	--	--	--	--	--	--
1 & 4 & 7	--	--	--	--	--	--	--
1 & 5 & 6	--	--	--	--	--	--	--
1 & 5 & 7	--	--	1,875	--	--	2,109	--
1 & 6 & 7	--	--	--	--	--	--	--
2 & 3 & 4	--	777	7,080	--	3,199	1,774	--
2 & 3 & 5	--	--	--	2,059	732	1,476	--
2 & 3 & 6	--	--	--	--	--	--	--
2 & 3 & 7	648	--	--	652	980	923	--
2 & 4 & 5	--	--	--	--	--	--	--
2 & 4 & 6	--	--	--	--	--	--	--
2 & 4 & 7	--	--	--	--	--	--	--
2 & 5 & 6	--	--	--	--	--	--	--
2 & 5 & 7	--	--	--	--	--	--	--
2 & 6 & 7	--	--	--	--	--	--	--
3 & 4 & 5	--	--	--	--	--	--	--
3 & 4 & 6	--	--	--	--	--	--	--
3 & 4 & 7	--	--	--	730	--	--	--
3 & 5 & 6	6,226	--	--	--	--	--	--
3 & 5 & 7	--	--	--	--	--	--	1,078
3 & 6 & 7	--	--	--	--	--	--	--
4 & 5 & 6	--	--	--	--	--	--	--
4 & 5 & 7	--	--	--	--	--	--	--
4 & 6 & 7	--	--	--	--	--	--	--
5 & 6 & 7	--	--	--	--	--	--	--
4 or more	304	--	645	1,366	736	2,277	--
All factors	141,235	54,755	742,792	449,279	1,381,808	1,069,847	255,328

Table 18.--Growing-stock volume on timberland by forest type, average growing-stock volume and operability class, Wisconsin, 1983

(In thousand cubic feet)

Forest type and average growing-stock volume per acre (cu.ft. per acre)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack pine					
More than 1,000	280,772	--	200,936	74,302	5,534
400-1,000	141,314	--	55,953	61,908	23,453
Less than 400	19,594	--	--	4,530	15,064
All classes	441,680	--	256,889	140,740	44,051
Red pine					
More than 1,000	686,816	25,606	306,190	352,548	2,472
400-1,000	29,887	--	5,321	8,924	15,642
Less than 400	5,109	--	--	1,459	3,650
All classes	721,812	25,606	311,511	362,931	21,764
White pine					
More than 1,000	326,850	12,371	210,131	104,348	--
400-1,000	40,142	--	9,615	23,218	7,309
Less than 400	2,097	--	--	898	1,199
All classes	369,089	12,371	219,746	128,464	8,508
Balsam fir					
More than 1,000	242,274	--	131,087	105,452	5,735
400-1,000	135,975	--	70,375	32,456	33,144
Less than 400	17,552	--	--	6,169	11,383
All classes	395,801	--	201,462	144,077	50,262
White spruce					
More than 1,000	90,975	--	67,055	23,920	--
400-1,000	5,946	--	2,476	2,821	649
Less than 400	1,328	--	--	--	1,328
All classes	98,249	--	69,531	26,741	1,977
Black spruce					
More than 1,000	59,957	--	16,541	43,416	--
400-1,000	41,461	--	9,116	18,615	13,730
Less than 400	23,082	--	--	2,428	20,654
All classes	124,500	--	25,657	64,459	34,384
Northern white-cedar					
More than 1,000	364,607	2,175	249,377	113,055	--
400-1,000	92,693	--	50,256	27,228	15,209
Less than 400	4,354	--	--	952	3,402
All classes	461,654	2,175	299,633	141,235	18,611
Tamarack					
More than 1,000	40,493	--	19,979	18,474	2,040
400-1,000	58,082	--	11,429	32,868	13,785
Less than 400	15,499	--	--	3,413	12,086
All classes	114,074	--	31,408	54,755	27,911

(Table 18 continued on next page)

(Table 18 continued)

Forest type and average growing-stock volume per acre (cu.ft. per acre)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Oak-hickory					
More than 1,000	2,144,090	143,637	1,520,870	469,232	10,351
400-1,000	735,332	--	426,133	233,880	75,319
Less than 400	97,080	--	--	39,680	57,400
All classes	2,976,502	143,637	1,947,003	742,792	143,070
Elm-ash-soft maple					
More than 1,000	804,292	22,376	478,841	293,233	9,842
400-1,000	298,239	--	115,737	130,250	52,252
Less than 400	58,450	--	--	25,796	32,654
All classes	1,160,981	22,376	594,578	449,279	94,748
Maple-birch					
More than 1,000	4,189,265	247,137	2,849,256	1,053,940	38,932
400-1,000	773,603	--	286,320	299,914	187,369
Less than 400	82,446	--	--	27,954	54,492
All classes	5,045,314	247,137	3,135,576	1,381,808	280,793
Aspen					
More than 1,000	1,976,360	40,516	1,156,186	722,110	57,548
400-1,000	712,154	--	195,957	320,794	195,403
Less than 400	153,614	--	--	26,943	126,671
All classes	2,842,128	40,516	1,352,143	1,069,847	379,622
Paper birch					
More than 1,000	558,175	4,990	360,418	180,551	12,216
400-1,000	156,366	--	46,284	70,603	39,479
Less than 400	14,702	--	--	4,174	10,528
All classes	729,243	4,990	406,702	255,328	62,223
Exotic					
More than 1,000	--	--	--	--	--
400-1,000	--	--	--	--	--
Less than 400	556	--	--	--	556
All classes	556	--	--	--	556
Nonstocked					
More than 1,000	--	--	--	--	--
400-1,000	1,315	--	--	--	1,315
Less than 400	15,287	--	--	--	15,287
All classes	16,602	--	--	--	16,602
All types					
More than 1,000	11,764,926	498,808	7,566,867	3,554,581	144,670
400-1,000	3,222,509	--	1,284,972	1,263,479	674,058
Less than 400	510,750	--	--	144,396	366,354
All classes	15,498,185	498,808	8,851,839	4,962,456	1,185,082

Table 19.--Growing-stock volume on timberland by forest type, stand-age class and operability class, Wisconsin, 1983

(In thousand cubic feet)

Forest type and stand-age class (years)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack pine					
less than 21	30,055	--	--	1,733	28,322
21-40	154,409	--	55,019	83,661	15,729
41-60	230,089	--	178,263	51,826	--
61-80	24,229	--	20,709	3,520	--
81-100	2,898	--	2,898	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	441,680	--	256,889	140,740	44,051
Red pine					
less than 21	74,645	--	--	54,162	20,483
21-40	401,996	2,928	200,925	196,862	1,281
41-60	159,224	13,972	72,336	72,916	--
61-80	34,089	3,116	22,649	8,324	--
81-100	43,311	5,590	10,407	27,314	--
101-120	8,547	--	5,194	3,353	--
More than 120	--	--	--	--	--
All ages	721,812	25,606	311,511	362,931	21,764
White pine					
less than 21	16,213	--	--	7,705	8,508
21-40	31,711	--	11,835	19,876	--
41-60	69,484	--	36,896	32,588	--
61-80	114,366	--	84,428	29,938	--
81-100	58,178	--	27,596	30,582	--
101-120	23,443	4,135	11,533	7,775	--
More than 120	55,694	8,236	47,458	--	--
All ages	369,089	12,371	219,746	128,464	8,508
Balsam fir					
less than 21	34,563	--	--	--	34,563
21-40	59,948	--	27,245	18,171	14,532
41-60	181,921	--	106,056	74,698	1,167
61-80	79,471	--	44,247	35,224	--
81-100	19,404	--	13,860	5,544	--
101-120	12,716	--	5,779	6,937	--
More than 120	7,778	--	4,275	3,503	--
All ages	395,801	--	201,462	144,077	50,262
White spruce					
less than 21	5,061	--	2,265	1,318	1,478
21-40	60,041	--	56,978	2,564	499
41-60	27,030	--	10,288	16,742	--
61-80	6,117	--	--	6,117	--
81-100	--	--	--	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	98,249	--	69,531	26,741	1,977

(Table 19 continued on next page)

(Table 19 continued)

Forest type and stand-age class (years)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Black spruce					
less than 21	12,443	--	--	--	12,443
21-40	24,287	--	1,213	3,267	19,807
41-60	24,140	--	4,899	17,107	2,134
61-80	48,193	--	9,361	38,832	--
81-100	15,068	--	10,184	4,884	--
101-120	--	--	--	--	--
More than 120	369	--	--	369	--
All ages	124,500	--	25,657	64,459	34,384
Northern white-cedar					
less than 21	12,058	--	3,247	955	7,856
21-40	15,317	--	--	6,639	8,678
41-60	97,138	--	72,432	22,629	2,077
61-80	92,824	--	52,454	40,370	--
81-100	120,669	--	83,797	36,872	--
101-120	40,991	2,175	27,527	11,289	--
More than 120	82,657	--	60,176	22,481	--
All ages	461,654	2,175	299,633	141,235	18,611
Tamarack					
less than 21	15,982	--	--	--	15,982
21-40	17,403	--	--	5,474	11,929
41-60	32,592	--	6,085	26,507	--
61-80	32,939	--	19,808	13,131	--
81-100	9,749	--	5,515	4,234	--
101-120	2,957	--	--	2,957	--
More than 120	2,452	--	--	2,452	--
All ages	114,074	--	31,408	54,755	27,911
Oak-hickory					
less than 21	131,082	--	2,034	1,214	127,834
21-40	157,776	--	78,434	64,106	15,236
41-60	947,909	41,534	610,764	295,611	--
61-80	670,494	42,442	495,108	132,944	--
81-100	544,726	31,112	388,441	125,173	--
101-120	259,977	12,417	201,190	46,370	--
More than 120	264,538	16,132	171,032	77,374	--
All ages	2,976,502	143,637	1,947,003	742,792	143,070
Elm-ash-soft maple					
less than 21	76,358	--	--	4,971	71,387
21-40	164,940	--	74,225	68,353	22,362
41-60	285,094	2,294	131,533	150,268	999
61-80	326,649	12,923	195,159	118,567	--
81-100	194,125	2,331	112,270	79,524	--
101-120	64,116	4,828	47,796	11,492	--
More than 120	49,699	--	33,595	16,104	--
All ages	1,160,981	22,376	594,578	449,279	94,748

(Table 19 continued on next page)

(Table 19 continued)

Forest type and stand-age class (years)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Maple-birch					
less than 21	220,656	--	4,297	4,713	211,646
21-40	460,473	10,094	205,175	177,813	67,391
41-60	1,776,795	29,614	1,232,018	513,407	1,756
61-80	1,112,518	59,507	790,005	263,006	--
81-100	684,199	53,836	454,787	175,576	--
101-120	334,786	33,175	189,647	111,964	--
More than 120	455,887	60,911	259,647	135,329	--
All ages	5,045,314	247,137	3,135,576	1,381,808	280,793
Aspen					
less than 21	315,690	--	5,736	7,547	302,407
21-40	676,184	--	264,608	334,361	77,215
41-60	1,480,587	21,980	818,414	640,193	--
61-80	305,301	18,536	213,555	73,210	--
81-100	64,366	--	49,830	14,536	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	2,842,128	40,516	1,352,143	1,069,847	379,622
Paper birch					
less than 21	45,064	--	--	--	45,064
21-40	154,193	--	61,419	75,875	16,899
41-60	376,857	4,275	241,443	130,879	260
61-80	147,725	--	102,281	45,444	--
81-100	2,754	715	--	2,039	--
101-120	2,650	--	1,559	1,091	--
More than 120	--	--	--	--	--
All ages	729,243	4,990	406,702	255,328	62,223
Exotic					
less than 21	556	--	--	--	556
21-40	--	--	--	--	--
41-60	--	--	--	--	--
61-80	--	--	--	--	--
81-100	--	--	--	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	556	--	--	--	556
Nonstocked					
less than 21	16,602	--	--	--	16,602
21-40	--	--	--	--	--
41-60	--	--	--	--	--
61-80	--	--	--	--	--
81-100	--	--	--	--	--
101-120	--	--	--	--	--
More than 120	--	--	--	--	--
All ages	16,602	--	--	--	16,602
All types					
less than 21	1,007,028	--	17,579	84,318	905,131
21-40	2,378,678	13,022	1,037,076	1,057,022	271,558
41-60	5,688,860	113,669	3,521,427	2,045,371	8,393
61-80	2,994,915	136,524	2,049,764	808,627	--
81-100	1,759,447	93,584	1,159,585	506,278	--
101-120	750,183	56,730	490,225	203,228	--
More than 120	919,074	85,279	576,183	257,612	--
All ages	15,498,185	498,808	8,851,839	4,962,456	1,185,082

Table 20.--Growing-stock volume on timberland by forest type, ownership class and operability class, Wisconsin, 1983

(In thousand cubic feet)

Forest type and ownership class	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Jack Pine					
National forest	69,663	--	68,699	873	91
Other federal	16,783	--	15,160	970	653
Indian	8,727	--	7,673	1,054	--
State	22,772	--	8,455	8,839	5,478
County and municipal	97,619	--	46,826	40,000	10,793
Forest industry	48,622	--	20,521	22,231	5,870
Farmer	44,677	--	23,597	18,455	2,625
Miscellaneous private	132,817	--	65,958	48,318	18,541
All owners	441,680	--	256,889	140,740	44,051
Red pine					
National forest	149,956	17,088	79,247	52,102	1,519
Other federal	3,917	--	3,917	--	--
Indian	17,411	--	17,411	--	--
State	50,536	--	33,017	16,598	921
County and municipal	113,815	2,928	48,694	55,755	6,438
Forest industry	41,967	--	32,019	7,494	2,454
Farmer	80,664	--	27,783	51,876	1,005
Miscellaneous private	263,546	5,590	69,423	179,106	9,427
All owners	721,812	25,606	311,511	362,931	21,764
White pine					
National forest	27,378	--	27,378	--	--
Other federal	4,715	--	4,715	--	--
Indian	56,268	8,236	41,644	6,388	--
State	13,194	--	10,645	2,268	281
County and municipal	38,365	--	15,915	21,060	1,390
Forest industry	28,036	--	19,767	5,024	3,245
Farmer	86,943	--	40,059	44,415	2,469
Miscellaneous private	114,190	4,135	59,623	49,309	1,123
All owners	369,089	12,371	219,746	128,464	8,508
Balsam fir					
National forest	52,985	--	26,750	23,649	2,586
Other federal	--	--	--	--	--
Indian	5,942	--	--	5,942	--
State	20,980	--	11,676	6,674	2,630
County and municipal	80,737	--	32,592	40,167	7,978
Forest industry	35,268	--	26,700	5,118	3,450
Farmer	31,383	--	9,092	11,313	10,978
Miscellaneous private	168,506	--	94,652	51,214	22,640
All owners	395,801	--	201,462	144,077	50,262
White spruce					
National forest	71,776	--	55,584	15,239	953
Other federal	--	--	--	--	--
Indian	--	--	--	--	--
State	--	--	--	--	--
County and municipal	373	--	--	--	373
Forest industry	8,881	--	2,265	6,117	499
Farmer	--	--	--	--	--
Miscellaneous private	17,219	--	11,682	5,385	152
All owners	98,249	--	69,531	26,741	1,977

(Table 20 continued on next page)

(Table 20 continued)

Forest type and ownership class	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Black spruce					
National forest	31,636	--	1,086	25,758	4,792
Other federal	534	--	--	--	534
Indian	4,884	--	--	4,884	--
State	12,707	--	4,345	6,150	2,212
County and municipal	19,411	--	--	13,520	5,891
Forest industry	19,294	--	10,091	4,190	5,013
Farmer	4,872	--	--	780	4,092
Miscellaneous private	31,162	--	10,135	9,177	11,850
All owners	124,500	--	25,657	64,459	34,384
Northern white-cedar					
National forest	78,929	--	59,284	18,494	1,151
Other federal	--	--	--	--	--
Indian	37,201	--	32,333	3,722	1,146
State	19,232	2,175	12,326	4,731	--
County and municipal	50,195	--	35,543	12,491	2,161
Forest industry	51,737	--	30,930	20,100	707
Farmer	76,199	--	55,511	12,860	7,828
Miscellaneous private	148,161	--	73,706	68,837	5,618
All owners	461,654	2,175	299,633	141,235	18,611
Tamarack					
National forest	14,561	--	1,784	12,143	634
Other federal	--	--	--	--	--
Indian	2,040	--	--	--	2,040
State	4,911	--	1,168	2,676	1,067
County and municipal	7,149	--	--	4,749	2,400
Forest industry	7,533	--	1,121	4,554	1,858
Farmer	18,845	--	2,059	12,496	4,290
Miscellaneous private	59,035	--	25,276	18,137	15,622
All owners	114,074	--	31,408	54,755	27,911
Oak-hickory					
National forest	82,381	--	44,445	37,832	104
Other federal	34,204	--	26,140	5,558	2,506
Indian	43,636	9,355	24,045	9,111	1,125
State	68,854	14,423	40,444	12,107	1,880
County and municipal	198,057	3,264	73,362	103,881	17,550
Forest industry	62,462	6,110	37,017	9,484	9,851
Farmer	1,397,144	54,979	1,004,535	291,559	46,071
Miscellaneous private	1,089,764	55,506	697,015	273,260	63,983
All owners	2,976,502	143,637	1,947,003	742,792	143,070
Elm-ash-soft maple					
National forest	27,597	--	25,581	1,176	840
Other federal	36,861	--	15,790	18,856	2,215
Indian	20,652	--	14,571	4,915	1,166
State	56,878	--	35,012	16,184	5,682
County and municipal	181,549	5,465	82,074	82,127	11,883
Forest industry	93,484	--	56,242	32,319	4,923
Farmer	321,758	5,545	155,912	140,884	19,417
Miscellaneous private	422,202	11,366	209,396	152,818	48,622
All owners	1,160,981	22,376	594,578	449,279	94,748

(Table 20 continued on next page)

(Table 20 continued)

Forest type and ownership class	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Maple-birch					
National forest	643,471	32,638	435,211	173,642	1,980
Other federal	7,173	--	--	6,265	908
Indian	338,556	60,844	165,252	110,545	1,915
State	124,530	--	76,494	38,874	9,162
County and municipal	596,327	9,848	337,066	210,050	39,363
Forest industry	617,769	56,616	353,376	184,992	22,785
Farmer	1,021,034	18,438	624,678	277,440	100,478
Miscellaneous private	1,696,454	68,753	1,143,499	380,000	104,202
All owners	5,045,314	247,137	3,135,576	1,381,808	280,793
Aspen					
National forest	253,773	--	149,668	71,495	32,610
Other federal	27,535	--	1,952	21,504	4,079
Indian	87,957	--	41,703	39,525	6,729
State	105,774	--	51,288	38,159	16,327
County and municipal	573,687	1,966	226,076	254,273	91,372
Forest industry	170,076	--	86,378	53,407	30,291
Farmer	434,516	5,030	228,047	154,946	46,493
Miscellaneous private	1,188,810	33,520	567,031	436,538	151,721
All owners	2,842,128	40,516	1,352,143	1,069,847	379,622
Paper birch					
National forest	42,168	2,722	17,012	20,044	2,390
Other federal	6,091	--	2,653	1,384	2,054
Indian	10,006	--	6,081	3,925	--
State	39,919	--	28,270	10,365	1,284
County and municipal	120,543	--	49,489	63,887	7,167
Forest industry	52,532	--	32,794	18,455	1,283
Farmer	135,845	--	80,488	32,754	22,603
Miscellaneous private	322,139	2,268	189,915	104,514	25,442
All owners	729,243	4,990	406,702	255,328	62,223
Exotic					
National forest	--	--	--	--	--
Other federal	--	--	--	--	--
Indian	--	--	--	--	--
State	--	--	--	--	--
County and municipal	--	--	--	--	--
Forest industry	--	--	--	--	--
Farmer	--	--	--	--	--
Miscellaneous private	556	--	--	--	556
All owners	556	--	--	--	556
Nonstocked					
National forest	--	--	--	--	--
Other federal	--	--	--	--	--
Indian	479	--	--	--	479
State	382	--	--	--	382
County and municipal	656	--	--	--	656
Forest industry	1,732	--	--	--	1,732
Farmer	4,862	--	--	--	4,862
Miscellaneous private	8,491	--	--	--	8,491
All owners	16,602	--	--	--	16,602
All types					
National forest	1,546,274	52,448	991,729	452,447	49,650
Other federal	137,813	--	70,327	54,537	12,949
Indian	633,759	78,435	350,713	190,011	14,600
State	540,669	16,598	313,140	163,625	47,306
County and municipal	2,078,483	23,471	947,637	901,960	205,415
Forest industry	1,239,393	62,726	709,221	373,485	93,961
Farmer	3,658,742	83,992	2,251,761	1,049,778	273,211
Miscellaneous private	5,663,052	181,138	3,217,311	1,776,613	487,990
All owners	15,498,185	498,808	8,851,839	4,962,456	1,185,082

Table 21.--Growing-stock volume on timberland by distance from major wood-using center and operability class, Wisconsin, 1980

(In thousand cubic feet)

Wood-using center and distance (miles)	All classes	Operability class			
		I - Good	II - Medium	III - Poor	IV - Sapling-seedling and nonstocked
Cornell-Stanley					
Less than 20	314,105	--	181,747	95,866	36,492
20-50	1,735,317	42,412	913,485	642,609	136,811
More than 50	13,448,763	456,396	7,756,607	4,223,981	1,011,779
Durand					
Less than 20	253,598	5,817	181,152	52,202	14,427
20-50	797,842	14,344	524,208	211,346	47,944
More than 50	14,446,745	478,647	8,146,479	4,698,908	1,122,711
Green Bay					
Less than 20	141,908	2,066	60,183	74,979	4,680
20-50	966,284	45,898	510,500	348,971	60,915
More than 50	14,389,993	450,844	8,281,156	4,538,506	1,119,487
Hayward					
Less than 20	593,495	10,636	341,568	200,191	41,100
20-50	2,696,726	80,360	1,526,086	888,034	202,246
More than 50	12,207,964	407,812	6,984,185	3,874,231	941,736
Kaukauna					
Less than 20	89,270	--	33,305	48,451	7,514
20-50	947,254	40,993	481,816	379,065	45,380
More than 50	14,461,661	457,815	8,336,718	4,534,940	1,132,188
Niagara-Peshtigo					
Less than 20	449,499	7,129	233,895	157,967	50,508
20-50	1,923,192	119,878	1,054,398	643,497	105,419
More than 50	13,125,494	371,801	7,563,546	4,160,992	1,029,155
Onalaska					
Less than 20	260,064	--	178,975	67,855	13,234
20-50	1,101,817	18,620	727,471	285,770	69,956
More than 50	14,136,304	480,188	7,945,393	4,608,831	1,101,892
Park Falls					
Less than 20	607,602	23,073	338,281	188,459	57,789
20-50	2,785,534	64,478	1,716,419	819,418	185,219
More than 50	12,105,049	411,257	6,797,139	3,954,579	942,074
Rice Lake-Spooner					
Less than 20	423,461	5,532	255,790	145,024	17,115
20-50	2,210,759	53,920	1,278,099	702,628	176,112
More than 50	12,863,965	439,356	7,317,950	4,114,804	991,855
Shawano					
Less than 20	517,951	50,629	288,040	166,079	13,203
20-50	2,093,041	118,043	1,069,296	787,946	117,756
More than 50	12,887,193	330,136	7,494,503	4,008,431	1,054,123
Superior					
Less than 20	139,597	9,035	52,456	56,217	21,889
20-50	1,086,305	10,332	577,547	395,536	102,890
More than 50	14,272,283	479,441	8,221,836	4,510,703	1,060,303
Tomahawk					
Less than 20	479,223	4,992	238,931	179,677	55,623
20-50	2,450,807	66,605	1,440,994	739,929	203,279
More than 50	12,568,155	427,211	7,171,914	4,042,850	926,180
Wausau					
Less than 20	384,067	17,374	227,804	107,767	31,122
20-50	2,282,846	119,789	1,186,525	801,536	174,996
More than 50	12,831,272	361,645	7,437,510	4,053,153	978,964
Wisconsin Rapids					
Less than 20	230,160	4,042	99,883	92,780	33,455
20-50	1,756,757	61,687	937,941	592,031	165,098
More than 50	13,511,268	433,079	7,814,015	4,277,645	986,529
Closest wood-using center					
Less than 20	4,719,574	138,057	2,644,856	1,551,433	385,228
20-50	9,144,620	297,162	5,220,578	2,939,439	687,441
More than 50	1,633,991	63,589	986,405	471,584	112,413

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Hahn, Jerold T.; Hansen, Mark H.
1989. **Operability and location of Wisconsin's timber resource**. Gen. Tech. Rep. NC-134. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 42 p.

Data collected during the 1983 Wisconsin Statewide forest inventory were used to examine operability of the timber resource based on seven operability components. Operability is the ease or difficulty of managing or harvesting timber because of physical conditions in the stand or on the site.

KEY WORDS: Management opportunities, forest inventory, prime forest land, harvesting, accessibility.

Our job at the North Central Forest Experiment Station is discovering and creating new knowledge and technology in the field of natural resources and conveying this information to the people who can use it. As a new generation of forests emerges in our region, managers are confronted with two unique challenges: (1) Dealing with the great diversity in composition, quality, and ownership of the forests, and (2) Reconciling the conflicting demands of the people who use them. Helping the forest manager meet these challenges while protecting the environment is what research at North Central is all about.